WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

DESCRIPTION OF FISH AND WILDLIFE DIGITAL DATA

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INTRODUCTION

This document describes digital fish and wildlife data available from the Washington Department of Fish and Wildlife (WDFW). It covers general background information on data compilation methods, data organization, structure, and details on using the digital data.

Data described here are managed with Arc/Info geographic information system (GIS) software. The data sets covered in this document represent WDFW's knowledge of fish and wildlife resources and occurrences based on research and field surveys conducted over the past 20 years. It is important to note, however, that priority habitats or species may occur on the ground in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site-specific surveys are frequently necessary to rule out the presence of priority species or habitat types. These data sets are:

Priority Habitats and Species Database - An inventory of key species use areas and key fish and wildlife habitats (usually polygonal) based on expert empirical knowledge. These data include locations of federal and state listed species (threatened, endangered, sensitive, candidate) and other priority non-game and game species.

Wildlife Heritage Database - A database containing significant site observations (point occurrences) of non-game species of concern, including federal and state listed species, obtained by surveys or observations by reputable sources.

Marbled Murrelet Database - Locations of Marbled Murrelet detection sites and areas.

Spotted Owl Database - Locations of Spotted Owl site centers and management circles.

Old Growth Database - A database containing information about 1988 late successional timber stands.

StreamNet Database - A statewide inventory of anadromous and resident fish distribution.

National Wetlands Inventory Database - An inventory identifying wetlands and deep water habitats based on data derived from high altitude color infrared aerial photographs. This data is managed by the Washington Department of Ecology.

These data do not represent exhaustive inventories. They are compilations of existing knowledge from field biologists that are updated as knowledge improves. Because these fish and wildlife data are not exhaustive and subject to change, project review for fish and wildlife should not rest solely on digital priority habitats and species data. Instead, they should also consider new information gathered from field investigations.

Also, because these databases are subject to change, information should not be used if over six months old; please request updated data rather than use old information.

Some information on specific locations of fish and wildlife is considered sensitive by the Director of WDFW and will be released in a standard format only. This format may be either tabular, digital, and/or displayed on a 1:24,000 map. WDFW standard map format consists of fish and wildlife information displayed for an individual section with a one square mile buffer (nine square miles total). WDFW will release sensitive fish and wildlife information covering an area greater than thirty square miles to the following parties in conjunction with the signing of the sensitive Fish and Wildlife Information Memorandum of Understanding (MOU).

- Government agencies
- Tribes
- Researchers affiliated with an accredited college or university
- Landowners (for their lands), or other parties with permission from the landowner
- Agents of the above parties (e.g., consultants, realtors, etc.)

This MOU indicates that the signatory person or agency recognizes the appropriate guidelines for disseminating sensitive fish and wildlife information. For additional information contact WDFW at (360) 902-2543.

Other data sets that are not part of the standard data release are available. These are the Spotted Owl Site Center Database, Game Management Units, Western Washington Late Successional Stand Data, NOAA Seabird Colonies 1989, Marine Resource Data, and Water Resource Inventory Areas. All except the Spotted Owl Database can be requested without a MOU. General descriptions about these data sets will be furnished upon request.

For more information on WDFW you may visit our web site at www.wa.gov/wdfw or visit the Priority Habitats and Species site at www.wa.gov/wdfw/hab/phspage.htm.

For information on the state's endangered, threatened, and sensitive plants as well as high quality wetland and terrestrial ecosystems, please contact the Washington Department of Natural Resources, Natural Heritage Program at PO Box 47016, Olympia Washington 98504-7016, by phone (360)902-1667 or visit the web site at www.wa.gov/dnr/htdocs/fr/nhp/wanhp.html.

PRIORITY HABITATS AND SPECIES DATABASE

Data Manager: Terry Johnson
(360) 902-2494

General Description

The Washington Department of Fish and Wildlife (WDFW) has developed and maintains the following products:

1. A list of priority habitats and species;
2. Map locations of priority habitats and species at 1:24,000 scale. Areas delineated on maps are to be supported by descriptive information entered on a standard data form;
3. A geographic information system that provides access to the maps and tabular information;
4. Management recommendations for priority habitats and species.

The Priority Habitats and Species (PHS) Database consists of polygons or points that describe occurrences of priority habitats and species. All priority species mapped areas represent known use areas; they are not potential habitats. Priority habitats are areas that support diverse, unique and/or abundant communities of fish and wildlife. Locational data are associated with reports detailing each priority habitat and species.

PHS data are compiled by WDFW biologists using the best information available from research efforts, surveys, or field observations. The exact source of each delineated feature is described in the associated attribute files. These data represent known occurrences of priority habitats and species, not potential or theoretical.

Point locations of priority non-game species are also contained in the Wildlife Heritage Database. Additionally, some game and non-game fish species are considered priority species; data on their distribution is contained in the StreamNet Database.

PHS data are supported by documents titled *Management Recommendations for Washington's Priority Habitats and Species*. These management recommendations are developed with a thorough review of the best scientific literature available. They provide important background information on each species or habitat type and recommendations for conducting land uses that consider the needs of fish and wildlife. When a priority habitat or species occurs in or near a project site, these management recommendations should be consulted to determine how to modify the project in consideration of fish and wildlife needs.

Resolution and Limitations

PHS data are compiled on 1:24,000 scale topographic maps. A code is used on supporting data forms, indicating the locational accuracy of the feature as determined by the field biologist doing the mapping. Accuracy ranges from within one-quarter mile to general area.

These data are not an exhaustive inventory of priority habitats and species in the state. They represent the best knowledge of WDFW field biologists. The database is updated as knowledge improves.

Priority habitat data on old growth are not routinely provided. A separate request must be made to obtain these data. Wetland data largely consists of the US Fish and Wildlife Service National Wetland Inventory (NWI). NWI data is included in the data we provide, though only for small areas. For larger areas, NWI digital data can be obtained from the Washington Department of Ecology.

Data Organization and Structure

The digital data is provided in two formats. The data is provided as a single coverage or is grouped into multiple coverages corresponding to US Geological Survey (USGS) 1:24,000, 7.5-minute scale topographic maps. If your digital data is a single coverage it will be called PHSPOLY, if multiple coverages they will be named based upon a seven digit numeric code, described in Appendix A, and preceded with an 'A'. There may also be a coverage named HABPTS that contains priority habitat points. A coverage named INDEX which contains the boundaries of the 7.5-minute quadrangles for Washington state is included. It can be used to cross-reference the quadcode with the standard USGS quadrangle name.

All spatial information is Arc/Info export format (.e00 files), in State Plane South coordinates (Zone 5626), North American Datum of 1927.

The data structure for PHS polygonal data has been simplified with the addition of a region feature class. This removes the cumbersome use of a cross-reference table to tie the polygons and attribute tables (PHSEO, PHSDSCRP, PHSSRC, and PHSLULC) together. Regions can be used like polygons, but they more efficiently represent complex area features that overlap, composite area features composed of many polygons, and multiple classes of area features that share common boundaries. Regions are organized by subclasses and the PHS polygonal data contains a subclass titled 'EO'. The subclass 'EO' contains region features based on the EOFORM number (key field in the attribute table) associated with a species or habitat record. Two items EOCODE and CRIT have been added to the region feature attribute table (PATEO) to allow for reselection of regions based on species/habitat type and species use code.

The old data structure for PHS polygonal data was not simple. It utilized a cross-reference INFO (PHSXREF) table to tie polygons in the coverages to descriptive information in a set of extended attribute tables (PHSEO, PHSDSCRP, PHSSRC, and PHSLULC). In other words a polygon may be described by one or many records in the extended attribute tables. A polygon might represent an intersection of elk winter range and a bald eagle communal roost. This made use of the data in Arc/Info somewhat cumbersome without the aid of macros. The data description for PHSXREF describes some strategies for using the data.

Please keep in mind that the data is DRAFT. The data has not been fully edited. In most cases, errors are minor. If you encounter significant errors, please contact Terry Johnson at (360) 902-2494 or the Department's regional habitat biologist. The data definitions and structure presented here are subject to change.

Data on specific locations of some fish and wildlife species is considered sensitive and access to that information is restricted by WDFW policy. If your request required a sensitive Fish and Wildlife Information Release Memorandum of Understanding (MOU) and you or your organization has one on file, please refer to that document for conditions regarding these data.

DATA STRUCTURE NAME: PHSPOLY or A<quadrangle code>

DATA STRUCTURE TYPE: Arc/Info polygon coverage

This coverage contains polygon data for fish, wildlife, and habitats mapped as priority habitats and species at WDFW. If you receive a single coverage for your project area it will have the name PHSPOLY, if you receive multiple coverages they will begin with 'A' followed by WDFW's standard seven digit quadrangle code (see Appendix A).

The data structure for PHS polygonal data has been simplified with the addition of a region feature class. This removes the cumbersome use of a cross-reference table (PHSXREF) to tie the polygons and attribute tables (PHSEO, PHSDSCRP, PHSSRC, and PHSLULC) together. The region feature class for PHS polygonal data contains a subclass titled 'EO'. The subclass 'EO' contains region features based on the EOFORM (key field in the attribute table) with a species or habitat record. The items EOCODE and CRIT have been added to the region feature attribute table (PATEO) to allow for reselecting regions based on species/habitat type and species use code.

Limited attributes are stored in the PAT (polygon attribute table) associated with the coverage. The item 'PHSID' in the PAT serves as a key field linking the coverage data to a cross-reference file, PHSXREF, which in turn provides the linkage to the extended attribute tables, PHSEO, PHSDSCRP, PHSSRC, and PHSLULC. These tables contain information about the polygon as recorded by field staff on standard data forms. Please see the discussion of PHSXREF for more information about this linkage.

DATA STRUCTURE NAME: PHSPOLY or A<quadrangle code> (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
AREA	8	18	F	5	Map area of feature, expressed in square feet.
PERIMETER	8	18	F	5	Perimeter of feature, expressed in feet.
PHSPOLY#	4	5	B	-	Arc/Info internal identifier.
PHSPOLY-ID	4	5	B	-	Arc/Info user identifier.
FORMLIST	120	120	C	-	Concatenation of form numbers associated with the point or polygon as mapped for PHS. Each form number is six digits wide and separated from the other form numbers with an intervening dash. The form number '900000' indicates the area was not mapped or the presence of a priority species was not known. The form numbers '909998', '909997', and '909996' indicate an unresolved compilation error.
QUADCODE	4	7	B	-	WDFW standard 7 digit number identifying the USGS quadrangle containing the information.
PHSID	4	8	B	-	Number assigned to the point or polygon uniquely identifying it statewide. This number links the record to one or many records in the PHSXREF file.

DATA STRUCTURE NAME: PHSPOLY.PATEO or A<quadrangle code>.PATEO

DATA STRUCTURE TYPE: INFO region feature attribute table

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
AREA	8	18	F	5	Map area of feature, expressed in square feet.

DATA STRUCTURE NAME: PHSPOLY.PATEO or A<quadrangle code>.PATEO (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
PERIMETER	8	18	F	5	Perimeter of feature, expressed in feet.
EO#	4	5	B	-	Arc/Info internal identifier.
EO-ID	4	5	B	-	Arc/Info user identifier.
EOFORM	4	7	B	-	Data form number links with PHS attribute tables PHSEO, PHSSRC, PHSDSCRP, and PHSLULC in a one-to-one relationship.
EOCODE	6	6	C	-	Code identifying species (derived from genus and species) or habitat. See the appendices for codes used.
CRIT	3	3	C	-	Mapping criteria/species use. See appendices for codes used.

DATA STRUCTURE NAME: PHSEO

DATA STRUCTURE TYPE: INFO table

This file contains descriptive information about polygons mapped as priority habitats and species at WDFW and contained in PHS quadrangle coverages.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
EOFORM	4	7	B	-	Number identifying data form on which descriptive information was originally recorded. This field serves to link this file to the cross-reference file, PHSXREF.
BATCHID	6	6	C	-	Data entry batch number.
EOCODE	6	6	C	-	Code identifying species (derived from genus and species) or habitat. See the appendices for codes used.

DATA STRUCTURE NAME: PHSEO (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
CRIT	3	3	C	-	Mapping criteria/species use. See appendices for codes used.
SEASON	5	5	C	-	Season of use. Use is indicated by the presence of a non-blank character in one or more 'positions' or substrings of the field. Position 1 = winter use (W) 2 = spring use (S) 3 = summer use (U) 4 = fall use (F) 5 = severe winter use (S).
DEF	5	5	C	-	Mapping criteria definition.
COORD	1	1	I	-	Mapping accuracy. 1 = within a quarter mile 2 = accurate within one-half mile 3 = accurate within one mile 4 = general locality
MODWHO	25	25	C	-	Last person to modify the record.
MODDATE	6	6	I	-	Date of last modification of the record.

DATA STRUCTURE NAME: PHSSRC

DATA STRUCTURE TYPE: INFO table

This INFO file contains SOURCE OF INFORMATION from the data forms. One data form can be supported by multiple sources of information blocks.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
EOFORM	4	7	B	-	Number identifying data form on which descriptive information was originally recorded. This field serves to link this file to the cross-reference file, PHSXREF.

DATA STRUCTURE NAME: PHSSRC (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
BATCHID	6	6	C	-	Data entry batch number.
SRCCODE	6	6	C	-	Coded field identifying the source of information. See the appendices for codes used.
SRCDATE	6	6	C	-	Date of source of information.
SRCLEAD	70	70	C	-	Source of information in modified literature citation format.
SRCSYN1	80	80	C	-	Source synopsis. Brief narrative describing content of source.
SRCSYN2	80	80	C	-	Source synopsis (continuation record).
MODWHO	25	25	C	-	Last person to modify the record.
MODDATE	6	6	I	-	Date of last modification of the record.

DATA STRUCTURE NAME: PHSLULC

DATA STRUCTURE TYPE: INFO table

This INFO file contains coded land use/land cover information recorded on the data form. One form can be described by one to three records. For some forms, land use/land cover was not recorded. The information in this file is generally subjective in nature and has not been derived from a structured inventory.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
EOFORM	4	7	B	-	Number identifying data form on which descriptive information was originally recorded. This field serves to link this file to the cross-reference file, PHSXREF.
BATCHID	6	6	C	-	Data entry batch number.

DATA STRUCTURE NAME: PHSLULC (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
LULCCODE	3	3	I	-	Land use/land cover code. See appendices for codes used.
LULCPER	3	3	I	-	Percentage of total polygon area associated with the data form described by LULCCODE. Generally, this percentage is a rough estimate made by the mapper.
LULCDATE	6	6	C	-	Date of information.
LULCSRC	6	6	C	-	Coded field identifying the source of the information. See the appendices for codes used.
MODWHO	25	25	C	-	Last person to modify the record.
MODDATE	6	6	I	-	Date of last modification of the record.

DATA STRUCTURE NAME: PHSDSCRP

DATA STRUCTURE TYPE: INFO table

This file contains narratives describing the priority areas as recorded on the data form.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
EOFORM	4	7	B	-	Number identifying data form on which descriptive information was originally recorded. This field serves to link this file to the cross-reference file, PHSXREF.
BATCHID	6	6	C	-	Data entry batch number.
SITENAME	50	50	C	-	Site name. Name assigned by mapper based on one or more prominent geographic features in the vicinity.

DATA STRUCTURE NAME: PHSDSCRP (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
GENDES1	80	80	C	-	General description.
GENDES2	80	80	C	-	General description (continuation).
GENDES3	80	80	C	-	General description (continuation).
RECORDER	25	25	C	-	Name of individual entering information on the data form.
MAPPER	25	25	C	-	Name of individual doing the mapping.
COMPDATE	6	6	C	-	Date information was compiled.
MODWHO	25	25	C	-	Last person to modify the record.
MODDATE	6	6	I	-	Date of last modification of the record.

DATA STRUCTURE NAME: PHSXREF

DATA STRUCTURE TYPE: INFO table

The old data structure for PHS polygonal data was not simple. It utilized a cross-reference INFO (PHSXREF) table to tie polygons in the coverages to descriptive information in a set of extended attribute tables (PHSEO, PHSDSCRP, PHSSRC, and PHSLULC). The data description for PHSXREF describes some strategies for using the data.

One polygon can be associated with multiple descriptive records (e.g., in the file PHSEO) and one descriptive record can describe multiple polygons. For example, a polygon may be described on one data form as an elk winter range and on another as an elk migration corridor. The data form describing the migration corridor may apply to several polygons on the map as the corridor 'intersects' other priority areas or crosses a map boundary. This type of relationship is called a 'many to many' relationship in database jargon. It is not handled well by the Arc/Info software and data structure. This cross-reference file addresses this problem.

DATA STRUCTURE NAME: PHSXREF (continued)

The file contains one record for every unique pairing in the database of PHSID (a unique polygon identifier) and EOFORM (a unique form or descriptive record). From the perspective of this file, the relationship to both the PHS quadrangle coverage and the PHS descriptive tables is many to one. This structure is generally better handled by relational databases used in GIS technology (particularly Arc/Info) than is the many to many relationship described above.

To select polygons from a PHS quadrangle coverage based on descriptive information in PHSEO, the following general steps are used in Arc/Info.

1. The PHSXREF file is related to the PHSEO file using the field, EOFORM as the key or linking field. The desired records are re-selected based on user-specified values for one or more fields in PHSEO.

2. The field PHSID, which is a unique polygon identifier, is placed in a temporary lookup table.

3. The coverage or <cover name>.PAT file is related or linked to the lookup table using PHSID as the key or related field. All polygons which have a 'hit' in the lookup table are associated with the descriptive values specified by the user in step 1.

Rather than use temporary lookup tables, an alternative is to create permanent tables representing various combinations of descriptive values of common interest. For example, an elk winter range table can be created by selecting PHSEO records where **SPPCODE = 'CEEL'** and **SEASON = 'W'** or **SEASON = 'S'** and saving PHSID from the PHSXREF file to the newly created table. This table can then be related to the PAT of the PHS quadrangle coverage to select 'hits' as described above.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
PHSID	4	10	B	-	A unique statewide polygon number associated with a single polygon. This field links the record to a single record in the PAT of the PHS quadrangle coverage. Multiple records in this file may use the same PHSID (MANY TO ONE).

DATA STRUCTURE NAME: PHSXREF (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
EOFORM	4	7	B	-	Field that links or relates record to a single record in the descriptive files PHSEO, PHSSRC, PHSLULC, and PHSDSCRP. Multiple records may link or relate to a single descriptive file record (MANY TO ONE).
QUADCODE	4	7	B	-	WDFW standard 7 digit number identifying the USGS quadrangle containing the information.

DATA STRUCTURE NAME: HABPTS

DATA STRUCTURE TYPE: Arc/Info point coverage

Coverage contains point data for mapped priority habitats at WDFW.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
AREA	4	12	F	3	Unused
PERIMETER	4	12	F	3	Unused
HABPTS#	4	5	B	-	Arc/Info internal identifier
HABPTS-ID	4	5	B	-	Arc/Info user identifier
EOFORM	4	7	B	-	Data form number links with PHS attribute tables PHSEO, PHSSRC, PHSDSCRP, and PHSLULC in a one-to-one relationship.
EOCODE	6	6	C	-	Code identifying habitat. See the appendix C for codes used.
X-COORD	4	12	F	3	X - coordinate of habitat point.
Y-COORD	4	12	F	3	Y - coordinate of habitat point.

DATA STRUCTURE NAME: HABPTS (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
QUADCODE	4	7	B	-	WDFW standard 7 digit number identifying the USGS quadrangle containing the information.
COORD	1	1	I	-	Mapping accuracy. 1 = within a quarter mile 2 = accurate within one-half mile 3 = accurate within one mile 4 = general locality
SITENAME	50	50	C	-	Site name. Name assigned by mapper based on one or more prominent geographic features in the vicinity.
GENDES1	80	80	C	-	General description.
GENDES2	80	80	C	-	General description (continuation).
GENDES3	80	80	C	-	General description (continuation).
RECORDER	25	25	C	-	Name of individual entering information on the data form.
MAPPER	25	25	C	-	Name of individual doing the mapping.
SENS	1	1	C	-	Indicates if habitat is sensitive Y = yes, habitat is sensitive N = no, habitat is not sensitive

WILDLIFE HERITAGE DATABASE

Data Manager: Tom Owens
(360) 902-2489

General Description

The Wildlife Heritage (HRTG) Database contains information on documented point observations of non-game species of concern, state and federal listed species including those designated as endangered, threatened, sensitive, candidate, and monitor. This database was developed in the early 1980s and formed the beginning of the Priority Habitats and Species (PHS) Database. Together, PHS and HRTG provide locational data on important fish and wildlife.

HRTG data are collected by a variety of means from field surveys to reports from reputable sources. Scope of the database is statewide and encompasses over 230 species. The database is continually updated. High priority species are surveyed either every year or every five years. Lower priority species are surveyed as field logistics allow or on a less rigorous schedule.

Marbled murrelet detection sites are not included in the HRTG Database. If there are murrelets within your project area they will be included as part of the standard HRTG request but in a separate database. Please see the Marbled Murrelet Database section of this document for more information.

Resolution and Limitations

Positionally accurate data for current observations are represented as point locations. These data are at least accurate to within a quarter section of the Public Land Survey (PLS). Older and less positionally accurate data are reported by PLS section.

Only the most current (1978 and later) and accurately known data will be supplied. All other data will only be provided in response to special written requests. Using these older data requires consultation with Washington Department of Fish and Wildlife (WDFW) biologists.

This database contains information on species locations with direct regulatory implications. It is updated constantly, therefore, it is essential that users obtain updates before using data for future projects.

Since state and federal agencies are responsible for developing and implementing large scale conservation strategies for the spotted owl, these data are not routinely provided. If you require spotted owl data, a special written request must be made.

Data Organization and Structure

The digital data are contained within an Arc/Info export file ending in e00. HRTG data are in State Plane South coordinates (Zone 5626), North American Datum 1927.

Specific location data for some fish and wildlife species are considered sensitive and access to that information is restricted by WDFW policy. If your request required a sensitive Fish and Wildlife Information Release Memorandum of Understanding (MOU) and you or your organization has one on file, please refer to that document for conditions regarding the use of these data.

DATA STRUCTURE NAME: HRTGPTS

DATA STRUCTURE TYPE: Arc/Info point coverage

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
AREA	4	12	F	3	Unused
PERIMETER	4	12	F	3	Unused
HRTGPTS#	4	5	B	-	Arc/Info internal identifier
HRTGPTS-ID	4	5	B	-	Arc/Info user identifier
INDEX	6	6	C	-	Phylogenic-based species code
OCCUR	4	4	I	-	Number assigned sequentially to occurrences of a given species
SEQNO	2	2	I	-	Sequence number of a point to uniquely identify it from other points composing one occurrence (OCCUR)
QUADCODE	7	7	I	-	WDFW standard 7 digit number identifying the USGS quadrangle containing the information
DATAPT	3	3	I	-	Sequence number within 7.5-minute quadrangle
TRS	20	20	C	-	Township, range, section, quarter, and sixteenth section

DATA STRUCTURE NAME: HRTGPTS (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
CLASS	2	2	C	-	AA = artificial animal (nest platform not used yet) GA = game animal SA = special animal ZA = zapped animal (an occurrence lost to windthrow, development, etc.)
COUNTY	2	2	I	-	FIPS county code
REGION	1	1	I	-	WDFW region
STASTAT	2	2	C	-	State status SE = state endangered ST = state threatened SC = state candidate SM = state monitor
FEDSTAT	2	2	C	-	Federal status FE = federal endangered FT = federal threatened FP = federal proposed FC2 = federal candidate, category 2 F3B = federal candidate, category 3B F3C = federal candidate, category 3C
PHCLASS	1	1	C	-	Phylogenetic class I = invertebrate F = fish A = animal R = reptile B = bird M = mammal

DATA STRUCTURE NAME: HRTGPTS (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
PRIORT	2	2	I	-	Official state listing 1 = state endangered 3 = state threatened 5 = state sensitive 7 = state candidate 9 = state monitor
COORD	1	1	C	-	Mapping accuracy C = accurate to within 1/4 mile radius and confirmed by a reliable source U = accurate to within 1/4 mile radius and unconfirmed by a reliable source N = accurate to within one mile radius G = location known to general locality
CRIT	5	5	C	-	Mapping criteria B = breeding CR = communal roost IO = individual occurrence RLC = regular large concentrations RSC = regular small concentrations RI = regular individual
SPPCODE	6	6	C	-	Standard WDFW species code derived from genus and species (see Appendix G for codes)
YEAR	4	4	I	-	Year of observation
OWNCODE	9	9	C	-	Ownership code (see Appendix I for codes)
QUADPT	10	10	I	-	Internal use
XSOUTH	11	11	C	-	Easting south state plane
YSOUTH	11	11	C	-	Northing south state plane

DATA STRUCTURE NAME: HRTGPTS (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
GENDES1	80	80	C	-	General description
GENDES2	80	80	C	-	General description
GENDES3	80	80	C	-	General description
FIRSTDOT	1	1	C	-	Internal use
CRITQUAL	1	1	C	-	Internal use
DTENTER	8	8	I	-	Date entered
DTMOD	8	8	I	-	Date of last modification of the record
VERIFY	1	1	C		Verification code V = Verified by WDFW biologist U = Not verified by WDFW biologist 1 = Confirmed grizzly bear or wolf 2 = Probable grizzly bear or wolf
CRIT.SYM	4	4	B	-	Internal use

MARBLED MURRELET DATABASE

Data Manager: Tom Owens
(360) 902-2489

General Description

The Washington Department of Fish and Wildlife (WDFW) maintains information on marbled murrelet occupancy detection locations, detection areas and detection sections. Data are collected by a variety of means from field surveys to reports from reputable sources. The database is continually being updated.

Resolution and Limitations

Positionally accurate data for observations are represented as point locations. These data are at least accurate to within a 1/16 section of the Public Land Survey (PLS).

Of 19,000 marbled murrelet detections, 17,000 locations were digitized from 1:12,000 scale aerial photography. Only the detections indicative of stand occupancy (WDFW status 1-3) will be provided in the standard data retrieval. All other data will only be provided in response to special written requests.

This database contains information on species locations with direct regulatory implications. It is updated constantly, therefore, it is essential that users obtain updates before using data for future projects.

Since state and federal agencies are responsible for developing and implementing conservation strategies for the spotted owl, these data will not be routinely provided. If you require spotted owl data, a special written request must be made.

Data Organization and Structure

The digital data is Arc/Info export format (.e00 files), in State Plane South coordinates (Zone 5626), and North American Datum of 1927.

There are multiple coverages maintained by WDFW to manage marbled murrelet data. The MMSTATIONS point coverage contains locations of marbled murrelet survey stations. Characteristics for the survey stations are stored in the MMSURVEYS.TBL INFO file and detections of murrelets are contained in the coverage MAMUPTS.

In August 1997, due to rules adopted by the Forest Practice Board (FPR-8/97), WDFW was required to maintain additional marbled murrelet coverages. MMSTATUS3BUF is a polygon coverage derived from buffering murrelet occupancy detections (MAMUPTS - WDFW status values of 1 through 3) 1.5 miles. These management circles have regulatory significance in FPR-8/97. MAMUSECT is a polygon coverage containing marbled murrelet detection sections. A detection section is defined as any section where a murrelet has been detected, regardless of status (occupancy or presence). Each section is labeled with the most biologically significant detection status recorded for that section. Data prior to 1970 are not used for this process. The item STATUS has a values of 1 through 5 derived from the WDFWSTAT item in the MAMUPTS coverage. MAMUBUFF8 is a polygon coverage consisting of the eight adjacent sections surrounding a detection section with a STATUS value of 1 through 4. The internal sections have been dissolved away for cartographic simplicity. The item DSV is set to equal 8 to distinguish valid polygons from those known as "doughnut holes" caused by adjacent detection sections. MAMUSECT AND MAMUBUFF8 are clipped by a coverage which consists of a polygon that extends 50 miles inland from the saltwater shoreline and a polygon in the Columbia River estuary that was derived from the inland extent of tidal influence, approximately at Township 9 North, Range 7 West.

Data on specific locations of some fish and wildlife species is considered sensitive and access to that information is restricted by WDFW policy. If your request required a sensitive Fish and Wildlife Information Release Memorandum of Understanding (MOU) and you or your organization has one on file, please refer to that document for conditions regarding these data.

DATA STRUCTURE NAME: MAMUPTS

DATA STRUCTURE TYPE: Arc/Info point coverage

This point coverage contains marbled murrelet detection locations. **Only the detections locations for, WDFW status 1-3, will be provided in the standard data retrieval**. All other data will only be provided in response to special written requests.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
AREA	4	12	F	3	Unused
PERIMETER	4	12	F	3	Unused
MAMUPTS#	4	5	B	-	Arc/Info internal identifier
MAMUPTS-ID	4	5	B	-	Arc/Info user identifier

DATA STRUCTURE NAME: MAMUPTS (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
REFNUM	6	6	I	-	Unique reference number used for a single survey
MAPID	3	3	I	-	Unique detection identifier
WDFWSTAT	1	1	I	-	Numerical value that broadly summarizes a combination of behaviors used for data retrieval (see Appendix J for more detailed codes) 1 = nest or nest site 2 = eggshells or downy young 3 = occupied site- subcanopy behavior and circling between 1 and 1.25 canopy heights
OBSCODE	2	2	I	-	Code that identifies specific behavior combinations (see Appendix J for more detailed codes)
DETTIME	4	4	C	-	A time noted for each murrelet detection
VOCAL	1	1	C	-	Number of reported vocalization 1-9 M = multiple > 9 V = visual silent
AVOCAL	1	1	C	-	Alternate vocalizations Y = yes N = no
OVOCAL	1	1	C	-	Other vocalizations (whistle or soft que) Y = yes N = no
DETTYPE	3	3	C	-	Detection type H = heard only S = seen only B = both

DATA STRUCTURE NAME: MAMUPTS (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
AUDIO	1	1	C	-	Audio type J = jetsound W = wingbeats B = both
BEHAVIOR	2	2	C	-	F = flyover >1 canopy C = circle over > 1 canopy T = fly through <= 1 canopy B = circle below <= 1 canopy L = land in or depart from tree S = stationary U = unknown Blank = unknown
NUMBIRDS	2	2	C	-	Number of birds
BIRDHGT	4	4	C	-	Bird height reported by observer in fractions of canopies
DETNOTES	80	80	C	-	Detection notes reported by observer
TOWNSHIP	6	6	N	2	Township number
RANGE	6	6	N	2	Range number
MERIDIAN	1	1	C	-	Meridian E = east W = west
SECTION	3	3	I	-	Section number
CNTYFIPS	2	2	I	-	FIPS county code
QUADCODE	7	7	I	-	WDFW standard 7 digit number identifying the USGS quadrangle containing the information
DTENTER	8	8	D	-	Date survey was entered into official WDFW database
DTMODIFY	8	8	D	-	Date of last modification of the record.

DATA STRUCTURE NAME: MMSURVEYS.TBL

DATA STRUCTURE TYPE: INFO table

INFO table containing marbled murrelet survey location information. If the geographic fields are empty then there is no corresponding point in the MMSTATIONS coverage. This file is not included with the standard data request and will only be provided in response to a special written request.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
REFNUM	6	6	I	-	Unique reference number used for a single survey
OBSDATE	8	8	D	-	Date that the survey was conducted
DATECODE	1	1	I	-	Date interpolation code
OBSYEAR	4	4	I	-	Year of survey
AFFIL	20	20	C	-	Affiliation of observer
OBSERVER	30	30	C	-	Observer(s) name
EFFTYPE	1	1	C	-	Survey effort type S = standard survey (intent to locate murrelets) I = incidental (happened upon a murrelet)
TOWNSHIP	6	6	N	2	Township number
RANGE	6	6	N	2	Range number
MERIDIAN	1	1	C	-	Meridian E = east W = west
SECTION	3	3	I	-	Section number
CNTYFIPS	2	2	I	-	FIPS county code
QUADCODE	7	7	I	-	WDFW standard 7 digit number identifying the USGS quadrangle containing the information

DATA STRUCTURE NAME: MMSURVEYS.TBL (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
DTENTER	8	8	D	-	Date survey was entered into official WDFW database
DTMODIFY	8	8	D	-	Date of last modification of the record

DATA STRUCTURE NAME: MMSTATIONS.PAT

DATA STRUCTURE TYPE: Arc/Info point coverage

This is a point coverage showing locations of marbled murrelet survey if known. This file is not included with the standard data request and will only be provided in response to a special written request.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
AREA	4	12	F	3	Unused
PERIMETER	4	12	F	3	Unused
MMSTATIONS#	4	5	B	-	Arc/Info internal identifier
MMSTATIONS-ID	4	5	B	-	Arc/Info user identifier
REFNUM	6	6	I	-	Unique reference number used for a single survey

DATA STRUCTURE NAME: MMSTATUS3BUF.PAT

DATA STRUCTURE TYPE: Arc/Info polygon coverage

This is a polygon coverage derived from buffering marbled murrelet detections with a WDFW status (WDFWSTAT) of 1 thru 3 (occupancy detections). This file is not included with the standard data request and will only be provided in response to a special written request.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
AREA	8	18	F	5	Map area of feature, expressed in square feet.

DATA STRUCTURE NAME: MMSTATUS3BUF.PAT (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
PERIMETER	8	18	F	5	Perimeter of feature, expressed in feet
MMSTATUS3BUF#	4	5	B	-	Arc/Info internal identifier
MMSTATUS3BUF-ID	4	5	B	-	Arc/Info user identifier

DATA STRUCTURE NAME: MAMUSECT

DATA STRUCTURE TYPE: Arc/Info polygon coverage

This is a polygon coverage containing marbled murrelet detection sections. A detection section is defined as any section where a murrelet has been detected, regardless of status (occupancy or presence). This file is not included with the standard data request and will only be provided in response to a special written request.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
AREA	8	18	F	5	Map area of feature, expressed in square feet
PERIMETER	8	18	F	5	Perimeter of feature, expressed in feet
MAMUSECT#	4	5	B	-	Arc/Info internal identifier
MAMUSECT-ID	4	5	B	-	Arc/Info user identifier
STATUS	1	1	I	-	Numerical value that broadly summarizes a combination of behaviors used for data retrieval (see Appendix J for more detailed codes) 1 = nest or nest site 2 = eggshells or downy young 3 = occupied site- subcanopy behavior and circling bewteen 1 and 1.25 canopy heights 4 = presence detections 5 = no detections

DATA STRUCTURE NAME: MAMUBUFF8

DATA STRUCTURE TYPE: Arc/Info polygon coverage

This is a polygon coverage consisting of the eight adjacent sections surrounding marbled murrelet detection sections with a STATUS value of 1 through 4. This file is not included with the standard data request and will only be provided in response to a special written request.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
AREA	8	18	F	5	Map area of feature, expressed in square feet
PERIMETER	8	18	F	5	Perimeter of feature, expressed in feet
MAMUBUFF8#	4	5	B	-	Arc/Info internal identifier
MAMUBUFF8-ID	4	5	B	-	Arc/Info user identifier
DSV	2	2	I	-	8 = eight adjacent sections

SPOTTED OWL DATABASE

Data Manager: Tom Owens
(360)902-2489

General Description

There are multiple covers maintained by Washington Department of Fish and Wildlife (WDFW) to manage spotted owl data. The US Fish and Wildlife Service and Washington Department of Natural Resources (DNR) are the primary regulatory agencies managing impacts to spotted owls. These agencies have adopted a management circle approach for assessing the remaining suitable habitat surrounding documented spotted owls. Spotted owl observations are evaluated by WDFW biologists and organized to comprise the most accurate representation of owl territories based on type of observation, dispersal distances, habitat characteristics, and topography. The most recent related observation is designated the spotted owl site center. From this site center location a radius of 9504 feet (1.8 miles) is used for owl sites east of the I-5 corridor or 14256 feet (2.7 miles) is used west of I-5 to evaluate the amount of remaining habitat. The different radii reflect differences in home range sizes used by owls as determined by radio-telemetry studies.

Spotted owl survey results are sent in to WDFW where owl locations are compared to existing spotted owl site centers. If the new locations are sufficiently distant from established site centers, a new site is established. If the new observation is geographically related to a existing site center, has equivalent or greater biological significance, and is more current than the observation used to establish the existing site center, the site center is moved to the location of the new observation and the site center datum is encoded with the new biological status and observation date. If the new observation is geographically related to a existing site center, but does not have equivalent or greater biological significance relative to the observation used to establish and existing site center, the site center remains unchanged.

Resolution and Limitations

Survey data are digitized from 1:24,000 US Geological Survey quadrangle maps. The spotted owl site database and its associated Arc/Info covers are continually being updated from data received from WDFW, DNR, and timber industry survey efforts. Data from previously unsurveyed areas or of higher biological status receive data processing priority over geographically or biologically redundant data.

This database contains information on species locations with direct regulatory implications. It is updated constantly, therefore, it is essential that users obtain updates before using data for future projects.

Since state and federal agencies are responsible for developing and implementing conservation strategies for the spotted owl, these data will not be routinely provided. If you require spotted owl data, a special written request must be made.

Data Organization and Structure

The digital data is contained within an Arc/Info export file ending in E00. Data are in State Plane South coordinates (Zone 5626), North American Datum 1927.

There are four covers pertaining to spotted owls. OWLS is a point cover consisting of the site center locations, highest and most recent biological status codes, and the years associated with those coded observations. The remaining covers are polygon coverages created by buffering site centers east and west of I-5 (9504 feet or 14526 feet respectively). BUFFHISTERR is a polygon cover consisting of those site centers deemed no longer viable or active by WDFW owl data management biologists. These sites have been subjected to a multiple year protocol survey and no owl locations have been documented and the area is thought no longer capable of supporting spotted owls. BUFFNOTERR is a polygon cover consisting of buffered site centers for which no evidence of territorial behavior has been documented. BUFFTERR is a polygon cover consisting of buffered site centers for which evidence of territorial behavior has been documented. Such evidence includes: multiple years of observation of a single spotted owl (resident single), two or more spotted owls detected but pair status unknown, and coincident pair of owls observed or evidence of reproduction documented.

Data on specific locations of some fish and wildlife species is considered sensitive and access to that information is restricted by WDFW policy. If your request required a sensitive Fish and Wildlife Information Release Memorandum of Understanding (MOU) and you or your organization has one on file, please refer to that document for conditions regarding these data.

DATA STRUCTURE NAME: OWLS

DATA STRUCTURE TYPE: point coverage

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
AREA	4	12	F	3	Unused
PERIMETER	4	12	F	3	Unused
OWLS#	4	5	B	-	Arc/Info internal identifier
OWLS-ID	4	5	B	-	Arc/Info user identifier

DATA STRUCTURE NAME: OWLS (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
REFNO	5	5	I	-	A unique numeric identifier for each entry
SITENAME	26	26	C	-	A geographic name used to identify spotted owl site center area
LATLONG	15	15	C	-	Latitude/longitude of site center as determined by digitizing from 1:24,000 maps
Q100K	5	5	C	-	Name abbreviation of the 1:100,000 scale map that the site center is on
TRS	13	13	C	-	Township, range, and section of the site center
M	1	1	C	-	Meridian E = east W = west
SITENO	4	4	I	-	A unique numeric identifier for each site
OWNCODE	1	1	C	-	***Not current for spotted owl site centers prior to the change from 2.2 to 2.7 miles F = all lands within 2.7 west or 1.8 east of site center are federally owned D = some Dept. of Natural Resources managed land 2.7 west or 1.8 east of site center based on 1:100,000 public land quads. N = Not exclusively federal with 2.7 miles west or 1.8 east of site center but no Dept. of Natural Resources land present

DATA STRUCTURE NAME: OWLS (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
HIGHSTAT	1	1	C	-	Hierarchical scheme (listed highest to lowest) R = reproductive status P = pair present S = single present
HIGHYEAR	4	4	I	-	Most recent year achieving the highest status
LASTSTAT	1	1	C	-	Status of site during most recent year when at least one spotted owl was detected
LASTYEAR	4	4	I	-	Most recent year when spotted owl presence was detected
STATUS	20	20	C	-	Overall official status of the site based on all years data. See OFFSTAT for codes
OFFSTAT	1	1	C	-	Official site status numeric code 1 = pair or reproductive site 2 = two or more spotted owls detected, pair status unknown 3 = resident single site 4 = single spotted owl detected, site status unknown 5 = historic site deemed no longer suitable for owl use
I5SIDE	1	1	C	-	Site center is east or west of the I-5 corridor

OLD GROWTH DATABASE

Data Manager: Shelly Snyder
(360) 902-2483

General Description

The Washington Department of Fish and Wildlife (WDFW) undertook an old growth inventory and mapping project as part of the overall Remote Sensing Program in 1986. WDFW uses remote sensing technology for wildlife habitat mapping and for research into habitat use by animals. The driving force behind this project was the need for forest stand type mapping for use in spotted owl habitat preference research, and management applications for elk and mountain goats. The objective was to improve the mapping of forest stand type categories in western Washington using digital Landsat Satellite data.

Resolution and Limitations

The Landsat data and other data analysis were done by WDFW personnel between 1986 and 1989 and is available for most of western Washington (excluding coastal lowlands). If a more detailed description of the Old Growth Database is needed please request the following document: *The Status of Old Growth in Western Washington: A Landsat Perspective* by James R. Eby and Michelle C. Snyder, January 1990.

Data Organization and Structure

The digital data is provided in two formats. The data is provided as a single coverage or is grouped into multiple coverages corresponding to US Geological Survey (USGS) 1:24,000, 7.5-minute scale topographic maps. If your digital data is a single coverage it will be called OG88, if multiple coverages they will be named based upon a seven digit numeric code, described in Appendix A, and preceded with an 'G'. A coverage named INDEX which contains the boundaries of the 7.5-minute quadrangles for Washington state is included. It can be used to cross-reference the quadcode with the standard USGS quadrangle name.

All spatial information is Arc/Info export format (.e00 files), in State Plane South coordinates (Zone 5626), North American Datum of 1927.

The Old Growth Database contains information about late successional timber stands. The information was originally processed 1984 and 1986 Landsat MSS data and later updated using 1988 and 1989 Landsat MSS data. The database contains late successional timber stands divided info three types, old growth, large saw timber, and small saw timber.

Old growth is defined as coniferous forest stands where there are more than eight dominant trees per acre being thirty inches or more in diameter, codominant trees are sixteen or more inches in diameter, and where there is a deep multi storied canopy not completely closed.

Large saw timber is defined as coniferous forest stands where there are ten or more dominant trees per acre being twenty to thirty inches in diameter, codominant trees are fourteen inches or more in diameter, and where there is a canopy of two or three layers being almost closed.

Small saw timber is defined as coniferous forest stands where the dominant trees are fourteen to twenty inches in diameter, with a canopy of one or two layers and completely closed.

DATA STRUCTURE NAME: OG88 or G<quadrangle code>

DATA STRUCTURE TYPE: Arc/Info polygon coverage

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
AREA	8	18	F	5	Map area of feature, expressed in square feet
PERIMETER	8	18	F	5	Perimeter of feature, expressed in feet
OG88#	4	5	B	-	Arc/Info internal identifier
OG88-ID	4	5	B	-	Arc/Info user identifier
GRID-CODE	4	5	B	-	Late successional timber stand types 10 = small saw timber 20 = large saw timber 30 = old growth

STREAMNET DATABASE

Data Manager: Martin Hudson
(360) 902-2487

General Description

The StreamNet Database (formerly known as the Washington Rivers Information System - WARIS) contains statewide fish information at 1:100,000 scale. StreamNet was originally conceived in 1984 for hydropower planning but was later expanded during 1991 to provide administrators with the more detailed information required to meet other growing natural resource planning needs. The project goal is to meet these needs by providing information that is descriptive, current and standardized for use in GIS and tabular based environments while giving significant analytical capabilities on both. A stream reach ranking system is also maintained to support current regional hydropower regulatory requirements.

The StreamNet Database is one part of a four state database that began with the 1984 Pacific Northwest Rivers Study and the Northwest Environmental Database (NED). This effort is funded primarily by the Bonneville Power Administration (BPA) in cooperation with the states of Idaho, Montana, Oregon and Washington. In 1995 NED was merged with CIS (Coordinated Information System) to form the greater StreamNet Project managed by Pacific States Marine Fisheries Commission (PSMFC). StreamNet is presently supported locally by the Washington Department of Fish and Wildlife (WDFW) with update assistance provided by several Washington Indian Tribes and other state and federal agencies. In addition, WDFW provides technical support via database management and hardware and software support.

StreamNet is managed using Environmental Systems Research Institute's (ESRI) GIS software Arc/Info on a UNIX platform. The database includes: the National EPA 1:100,000 scale streams with major lakes and double banked streams; anadromous and resident fish presence with known spawning and rearing; and hydropower protected area designations for fish. Future categories may include riparian and in-stream habitat information.

This document provides a description of the information categories currently in StreamNet. This information is available as Arc/Info export data or on standardized maps. During 1996 StreamNet was enhanced with the Arc/Info dynamic segmentation data management model.

Resolutions and Limitations

StreamNet is available statewide at 1:100,000 scale of resolution and is the product of 1989-1997 data collection efforts.

Resident fish information is generalized to a river reach. More site-specific resident fish information is not available through this data set. The anadromous fish data represent a data compilation effort involving fish experts from many different agencies and organizations. The resident fish data were compiled largely by interviews with WDFW biologists, so it is less comprehensive. About 50 percent of the 1:100,000 scale streams have known resident fish resources that have been described; the rest are unknown.

Data Organization and Structure

The StreamNet data is organized by USGS Hydrologic Unit Code (HUC) basins. The hydrography and related tabular files for a single basin are placed in a sub-directory named with the HUC code (see Appendix L). Each basin sub-directory has the same names for its coverages and files. The data is distributed by basins to encourage treatment of the entire basin as a whole integrated unit. A coverage named INDEX which contains the boundaries for the HUC basins for Washington state is included.

The Arc/Info Dynamic Segmentation data model is used for managing the anadromous fish information and will be used in the future for resident fish. The primary advantage for using dynamic segmentation is that this advanced data structure removed the constraints that have prevented GIS from providing more accurate attribute data for linear features with reasonable costs. In the past, arcs had to be manually segmented for tracking detailed events occurring along linear features such as a transportation or stream networks.

Routes are used to define the link between features in dynamic segmentation. A “route” on a hydrographic layer is typically a named river or stream or a set of unnamed reaches that is assumed to define a stream. Routes are also assigned to single reach streams. The relates between attribute tables are constructed using system generated tables that define and/or describe a given route. The data tables that store attributes for linear runs or for points that fall along a stream or river are called event tables.

Two system generated tables serve as the important internal unique “relate” used in dynamic segmentation, the section (SEC) and route attribute (RAT) tables. The section table provides the measures and linkages to the arc layer via the route attribute table which defines the routes. A linkage is in place between the section and route attribute table with the main arc layer. Additional attribute information can be added to the tables, such as names of features or lengths of the individual arcs in the section table or the total length of a route in the attribute table.

Tabular data are stored in files called event tables. These tables are used to describe linear and point events along linear features. The main advantage of event tables is that beginning and ending points of attributes or the measures of point attributes can fall anywhere along an arc or reach, independent of the underlying linear topology. They are also still tied directly to the feature via the unique and versatile relate structure built into the dynamic segmentation model.

At the present time only the anadromous fish information is stored in true event tables, all other data are stored using conventional INFO tables designed structurally to be used as event tables.

Information for anadromous fish was collected in 1997, for Bull Trout in 1994 and the resident fish in approximately 1990. The stock status information was taken from the Salmon and Steelhead Stock Inventory Report and Appendices published by WDFW in 1992. At this time there are inconsistencies between the stock status and Bull Trout ranking. The Bull Trout ranking will be changed to the stock status system in future updates.

DATA STRUCTURE NAME: STR100

DATA STRUCTURE TYPE: Arc/Info line coverage

The 1:100,000 scale hydrography line files serve as the base for StreamNet. It is a digital reproduction of the rivers and streams on the 1:100,000 scale US Geological Survey (USGS) quadrangle maps. The hydrography layer was compiled by the EPA and USGS from the USGS DLGs and numerous errors corrected. The layer was enhanced with several streams from the 1:24,000 scale USGS quadrangle maps to build consistency and increase density across the layer.

Descriptive resource data are related to the hydrography by a RRN code assigned to each reach and by dynamic segmentation. This code is a modified version of the EPA river reach number (RRN), extended from the original 1:250,000 scale format to a version compatible to the 1:100,000 scale. The RRN is a concatenated version of the following three codes: the USGS Hydrologic Unit Code (HUC), the reach segment code (SEG) and the reach mile code (RMI). The reach mile is a measurement of miles in arc distance at the 1:100,000 scale and does not represent on-ground measurement. This measurement should be used as an index for comparing relative distances during analysis. It has been calculated only for streams with a SEG value less than or equal to 500. The RRN format is as follows:

HUC | SEG | RMI
17110004 0027 01.34

e.g. 17110004002701.34

DATA STRUCTURE NAME: STR100 (continued)

The hydrography layer and related tabular files are organized by the USGS hydrologic unit (a list of hydrologic units by river basin is in Appendix L). The hydrologic unit code (HUC) comprises the first 8 digits of the river reach number or code (RRN). The segment (SEG) and river mile (RMI) portions of the river reach code (SEGRMI) provide the relating mechanism between the hydrography layer and the tabular attribute files which describe the fish information.

Shorelines of double-banked streams, braided streams, lakes, and reservoirs are stored in the coverage called banks. Stream center lines run through these features to complete the stream network.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
FNODE#	4	5	B	-	----------
TNODE#	4	5	B	-	
LPOLY#	4	5	B	-	
RPOLY#	4	5	B	-	Arc attributes
LENGTH	4	12	B	3	
STR100#	4	5	B	-	
STR100-ID	4	5	B	-	----------
KILO_LENGTH	9	9	N	4	Length in kilometers
RRN	17	17	C	-	EPA river reach number
MAJOR1	6	6	I	-	----------
MINOR1	6	6	I	-	Stream type codes from USGS
MINOR2	6	6	I	-	DLG's
MINOR3	6	6	I	-	----------
LINE.TYPE	1	1	I	-	Synthesis of the MAJOR and MINOR codes 1 = annual rivers/streams 2 = ephemeral on intermittent streams 3 = dry streams 4 = canals 5 = shorelines 6 = all other Washington features 9 = non Washington features

DATA STRUCTURE NAME: STR100 (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
SAVENEG	1	1	I	-	Flag indicating non routed reaches (canals, ditches, and brains) value = 1
CEN	4	5	B	-	Node ID of allocation center used to create steam linkage
ROUTE.ID	12	12	I	-	Route ID
LLID	13	13	C	-	Longitude/Latitude IRRIC ID
ROUTE.NO	4	4	I	-	Route number
ROUTE.SRC	1	1	I	-	Route source
NAME	60	60	C	-	Stream names
		** REDEFINED ITEMS **			
ARCLINK#	4	5	B	-	Link to section table
HUC	8	8	I	-	USGS hydrologic unit code
SEGRMI	9	9	N	2	Combined SEG and RMI to give a unique reach identifier
SEG	4	4	I	-	Reach segment code
RMI	5	5	N	2	Reach mile

DATA STRUCTURE NAME: STR100.DAT

DATA STRUCTURE TYPE: INFO table

This INFO table contains additional attribute information for STR100.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
STR100#	4	5	B	-	Relate item

DATA STRUCTURE NAME: STR100.DAT (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
STR100-ID	4	5	B	-	Relate item
RRN	17	17	C	-	EPA river reach number
FEAT_NAME	60	60	C	-	Feature name
FEAT_SRC	2	2	C	-	Source of name
STATE	4	4	C	-	Primary state
STATE-2	4	4	C	-	Secondary state
COUNTY	15	15	C	-	Primary county
COUNTY-2	15	15	C	-	Secondary county
QUAD100	26	26	C	-	Primary 100K quad name
QUAD100-2	26	26	C	-	Secondary 100K quad name
QUAD75	25	25	C	-	Primary 24K quad name
QUAD75-2	25	25	C	-	Secondary 24K quad name
CUMLENGTH	4	12	F	2	Cumulative length from CEN
DNARC	4	5	B	-	Down stream arc
PNTR#	4	5	B	-	Pointer used in the linkage up and down stream
SINUOUS	5	5	N	2	Sinuosity - ratio of stream length over strait line distance
UHUC1	8	8	I	-	First upstream HUC
UPNTR1	5	5	I	-	First upstream reach (points to PNTR# of upstream reach)
UHUC2	8	8	I	-	Second upstream HUC

DATA STRUCTURE NAME: STR100.DAT (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
UPNTR2	5	5	I	-	Second upstream reach
UHUC3	8	8	I	-	Third upstream HUC
UPNTR3	5	5	I	-	Third upstream reach
UFLAG	1	1	I	-	More upstream reaches
DHUC	8	8	I	-	Downstream HUC
DPNTR	5	5	I	-	Downstream reach
CSEG	3	3	I	-	250K segment number
CRMI	5	5	N	2	250K river mile
CNAME	30	30	C	-	250K river name
		** REDEFINED ITEMS **			
UPLINK1	13	13	I	-	First uplink code
UPLINK2	13	13	I	-	Second uplink code
UPLINK3	13	13	I	-	Third uplink code
DOWNLINK	13	13	I	-	Downlink code
ARCLINK#	4	5	B	-	Provides linked relate to reach file
HUC	8	8	I	-	USGS hydrologic unit code
SEGRMI	9	9	N	2	Combined SEG and RMI to give a unique reach identifier that relates within a basin or HUC to the tablular files

DATA STRUCTURE NAME: STR100.RATSTREAMS

DATA STRUCTURE TYPE: INFO route feature attribute table

In StreamNet the route system is *streams* and the route attribute table is called STR100.RATSTREAMS and the section table is STR100.SECSTREAMS.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
STREAMS#	4	5	B	-	Link to STR100 and SEC table
STREAMS-ID	4	5	B	-	Internal ID
ROUTE.NO	4	4	I	-	Route number
ROUTE.ID	12	12	I	-	Route ID
LLID	13	13	C	-	IRICC stream ID Dec/Deg
ROUTE.SRC	1	1	I	-	Route source 1 = named streams 2 = user defined 3 = software defined
LENGTH	10	10	N	2	Length in feet
KILO_LENGTH	10	10	N	4	Length in kilometers
NAME	60	60	C	-	Stream Name
		** REDEFINED ITEMS **			
ROUTELINK#	4	5	B	-	Common link between all dynamic segmentation management files

DATA STRUCTURE NAME: STR100.SECSTREAMS

DATA STRUCTURE TYPE: INFO section feature attribute table

In StreamNet the route system is *streams* and the route attribute table is called STR100.RATSTREAMS and the section table is STR100.SECSTREAMS.

DATA STRUCTURE NAME: STR100.SECSTREAMS (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
ROUTELINK#	4	5	B	-	Link to RAT table
ARCLINK#	4	5	B	-	Link to STR100
F-MEAS	4	12	F	3	From measure on reach
T-MEAS	4	12	F	3	To measure on reach
F-POS	4	12	F	3	From position on reach
T-POS	4	12	F	3	To position on reach
STREAMS#	4	5	B	-	Link to STR100
STREAMS-ID	4	5	B	-	Internal ID
FNODE#	4	5	B	-	From node number
TNODE#	4	5	B	-	To node number
ROUTE.NO	4	4	I	-	Route number
ROUTE.ID	12	12	I	-	Route ID
LLID	13	13	C	-	IRICC stream ID Dec/Deg
ROUTE.SRC	1	1	I	-	Route source 1 = named streams 2 = user defined 3 = software defined
LENGTH	9	9	N	2	Length in feet
KILO_LENGTH	9	9	N	4	Length in kilometers
RRN	17	17	C	-	EPA river reach number
NAME	60	60	C	-	Stream Name

DATA STRUCTURE NAME: BANKS

DATA STRUCTURE TYPE: Arc/Info polygon coverage

The banks hydrography layer contains double-banked streams and rivers, the shorelines of lakes and reservoirs, and the boundaries of glaciers displayed on 1:100,000 scale USGS quadrangle maps. This EPA coverage was modified by the USGS Water Resources Division in Portland, Oregon from the USGS 1:100,000 scale DLGs.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
AREA	4	12	F	3	----------
PERIMETER	4	12	F	3	Arc/Info attributes
BANKS#	4	5	B	-	
BANKS-ID	4	5	B	-	----------
MAJOR1	6	6	I	-	----------
MINOR1	6	6	I	-	Feature type from USGS
MINOR2	6	6	I	-	DLG's
MINOR3	6	6	I	-	----------
HUC	8	8	I	-	USGS hydrologic unit code
POLY.TYPE	1	1	I	-	Synthesis of the Major and Minor codes 1 = lakes, reservoirs and double banked streams 2 = in-stream islands 3 = glaciers 4 = marshes and wetlands 5 = other Washington features 9 = all others

DATA STRUCTURE NAME: ANADPTS.PAT

DATA STRUCTURE TYPE: Arc/Info point coverage

The anadromous fish data contained in StreamNet represents current knowledge in the field. Updates were completed in 1997 and were a cooperative effort between WDFW and several Washington State Indian Tribes.

The ANADPTS layer contains anadromous fish upper extent locations and natural and artificial barriers to anadromous fish. Information includes dams, rapids, falls, temperature, flow limitations, descriptive attributes on species, the barrier and number of species at that barrier.

DATA STRUCTURE NAME: ANADPTS.PAT (continued)

The species items are coded ‘1' if the reach is a barrier to the species otherwise the value is ‘0'.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
AREA	4	12	F	3	----------
PERIMETER	4	12	F	3	Arc/Info attributes
ANADPTS#	4	5	B	-	
ANADPTS-ID	4	5	B	-	----------
COHO	1	1	I	-	Barrier to coho salmon
CHUM	1	1	I	-	Barrier to chum salmon
CHSP	1	1	I	-	Barrier to spring chinook
CHFA	1	1	I	-	Barrier to fall chinook
SOCK	1	1	I	-	Barrier to sockeye salmon
PINK	1	1	I	-	Barrier to pink salmon
STSU	1	1	I	-	Barrier to summer steelhead
STWI	1	1	I	-	Barrier to winter steelhead
WHST	1	1	I	-	Barrier to white sturgeon
GRST	1	1	I	-	Barrier to green sturgeon
SMET	1	1	I	-	Barrier to smelt
SHAD	1	1	I	-	Barrier to shad
NUMSPP	2	2	I	-	Number of species
BLOCK	3	3	C	-	Barrier type - first letter is either an ‘I’ for impassable to all species or a ‘P’ for designating passable to at least one, the next two letters are defined as: C = cascades CU = culvert D = dam F = falls IF = insufficient flow L = log jam T = temperature U = unknown

DATA STRUCTURE NAME: ANADPTS.PAT (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
REV_DATE	8	8	C	-	Revision date
REV_WHO	50	50	C	-	Revision source

DATA STRUCTURE NAME: PRODUCTN

DATA STRUCTURE TYPE: Arc/Info point coverage

This layer contains data on production facilities, including hatcheries and off-site rearing and staging areas.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
AREA	4	12	F	3	----------
PERIMETER	4	12	F	3	Arc/Info attributes
PRODUCTN#	4	5	B	-	
PRODUCTN-ID	4	5	B	-	----------
CODE	2	2	I	-	???
FACLNAME	40	40	C	-	Facility name
FACLCODE	2	2	C	-	Facility type CP = conditioning pond EB = egg box ET = egg tube HC = hatchery NP = net pens OW = over winter pond RP = rearing pond SC = spawning channel SP = spawning pads
LOCATION	60	60	C	-	Location by water name

DATA STRUCTURE NAME: PRODUCTN (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
BASINAME	15	15	C	-	Basin name
WRIANO	10	10	C	-	WRIA stream number
OPERATOR	30	30	C	-	Facility operator(s)
WATERSRC	60	60	C	-	Water source
SPECIES	30	30	C	-	Species reared (see Appendix K fish species codes)
HYDROUNIT	8	8	I	-	USGS hydrologic unit code
BLOCK	4	4	C	-	Barrier type - first letter is either an 'I' for impassable to all species or a 'P' for designating passable to at least one, the next two letters are defined as: C = cascades CU = culvert D = dam F = falls IF = insufficient flow L = log jam T = temperature U = unknown
PASSAGE	1	1	C	-	Passage facility
REV_DATE	8	8	C	-	Revision date
REV_WHO	50	50	C	-	Revision source

The following event files contain anadromous fish information that are related to the STR100 using the dynamic segmentation data model.

DATA STRUCTURE NAME: ANADPRES.EVT

DATA STRUCTURE TYPE: INFO linear event table

This event table contains anadromous fish distribution.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
ROUTE.NO	4	4	I	-	Route number
SPPCODE	4	4	C	-	Anadromous species code (see Appendix K)
BEGMEAS	9	9	N	2	Begin measure
ENDMEAS	9	9	N	2	End measure
LENGTH	9	9	N	2	Length in feet
LLID	13	13	C	-	IRICC stream ID
ROUTE.ID	12	12	I	-	Route ID
RRN	17	17	C	-	EPA river reach number
HUC	8	8	I	-	USGS hydrologic unit code
STATUS	10	10	C	-	Stock status (currently in SASI.EVT)
STATCODE	1	1	I	-	Numeric rank of status (currently in SASI.EVT)
FEDLIST *(not available at this time)*	2	2	C	-	*Federal protection status* *FE = endangered* *FT = threatened* *FC = candidate* *SS = sensitive*

DATA STRUCTURE NAME: ANADPRES.EVT (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
STATELIST *(not available at this time)*	2	2	C	-	*State protection status* *SE = endangered* *ST = threatened* *SC = candidate* *SS = sensitive*
NAME	60	60	C	-	Stream name
REV_DATE	8	8	C	-	Revision date
REV_WHO	50	50	C	-	Revision source

DATA STRUCTURE NAME: ANADSPAWN.EVT

DATA STRUCTURE TYPE: INFO linear event table

This event table contains anadromous fish known spawning.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
ROUTE.NO	4	4	I	-	Route number
SPPCODE	4	4	C	-	Anadromous species code (see Appendix K)
BEGMEAS	9	9	N	2	Begin measure
ENDMEAS	9	9	N	2	End measure
LENGTH	9	9	N	2	Length in feet
LLID	13	13	C	-	IRICC stream ID
ROUTE.ID	12	12	I	-	Route ID
RRN	17	17	C	-	EPA river reach number
HUC	8	8	I	-	USGS hydrologic unit code

DATA STRUCTURE NAME: ANADSPAWN.EVT (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
STATUS	10	10	C	-	Stock status (currently in SASI.EVT)
STATCODE	1	1	I	-	Numeric rank of status (currently in SASI.EVT)
FEDLIST *(not available at this time)*	2	2	C	-	*Federal protection status* *FE = endangered* *FT = threatened* *FC = candidate* *SS = sensitive*
STATELIST *(not available at this time)*	2	2	C	-	*State protection status* *SE = endangered* *ST = threatened* *SC = candidate* *SS = sensitive*
NAME	60	60	C	-	Stream name
REV_DATE	8	8	C	-	Revision date
REV_WHO	50	50	C	-	Revision source

DATA STRUCTURE NAME: ANADREAR.EVT

DATA STRUCTURE TYPE: INFO linear event table

This event table contains anadromous fish known rearing.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
ROUTE.NO	4	4	I	-	Route number
SPPCODE	4	4	C	-	Anadromous species code (see Appendix K)
BEGMEAS	9	9	N	2	Begin measure
ENDMEAS	9	9	N	2	End measure

DATA STRUCTURE NAME: ANADREAR.EVT (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
LENGTH	9	9	N	2	Length in feet
LLID	13	13	C	-	IRICC stream ID
ROUTE.ID	12	12	I	-	Route ID
RRN	17	17	C	-	EPA river reach number
HUC	8	8	I	-	USGS hydrologic unit code
STATUS	10	10	C	-	Stock status (currently in SASI.EVT)
STATCODE	1	1	I	-	Numeric rank of status (currently in SASI.EVT)
FEDLIST *(not available at this time)*	2	2	C	-	*Federal protection status* *FE = endangered* *FT = threatened* *FC = candidate* *SS = sensitive*
STATELIST *(not available at this time)*	2	2	C	-	*State protection status* *SE = endangered* *ST = threatened* *SC = candidate* *SS = sensitive*
NAME	60	60	C	-	Stream name
REV_DATE	8	8	C	-	Revision date
REV_WHO	50	50	C	-	Revision source

DATA STRUCTURE NAME: SASI.EVT

DATA STRUCTURE TYPE: INFO linear event table

This event table contains anadromous fish stock status. This data is from the Salmonid Stock Inventory (SaSI) report and appendices published by WDFW in 1992.

DATA STRUCTURE NAME: SASI.EVT (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
ROUTE.NO	4	4	I	-	Route number
SPPCODE	4	4	C	-	SaSI specific species codes CHFA = fall chinook CHIN = chinook CHSP = spring chinook CHSU = summer chinook CMFA = fall chum CMLF = late fall chum CMSU = summer chum CMWI = winter chum COHO = coho COSU = summer coho PIEY = pink, even year PINK = pink PIOY = pink, odd year SOCK = sockeye STSU = summer steelhead STWI = winter steelhead
BEGMEAS	9	9	N	2	Begin measure
ENDMEAS	9	9	N	2	End measure
STOCKID	4	4	I	-	Relate code to main SaSI data
LLID	13	13	C	-	IRICC stream ID
LENGTH	9	9	N	2	Length in feet
KILO_LENGTH	9	9	N	4	Length in kilometers
RRN	17	17	C	-	EPA river reach number
HUC	8	8	I	-	USGS hydrologic unit code
RACE	10	10	C	-	Species race (fall, summer etc.)
SPECIES	10	10	C	-	Species
STATUS	10	10	C	-	Stock status

DATA STRUCTURE NAME: SASI.EVT (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
STATCODE	1	1	I	-	Numeric rank of status 0 = unknown 1 = healthy 2 = depressed 3 = critical 4 = extinct
ORIGIN	10	10	C	-	Species origin
TYPE	10	10	C	-	Stock type
PSCLOC	10	10	C	-	Stock code in SaSI
LOCATION	35	35	C	-	Stream or basin location
NAME	60	60	C	-	Stream name
REV_DATE	8	8	C	-	Revision date
REV_WHO	50	50	C	-	Revision source

DATA STRUCTURE NAME: PRESENCE.EVT

DATA STRUCTURE TYPE: INFO linear event table

This event table is a composite of the three anadromous fish event tables ANADPRES.EVT, ANADSPAWN.EVT and ANADREAR.EVT. This event table provides convenient knowledge of where both spawning and rearing may occur at the same locations.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
ROUTE.NO	4	4	I	-	Route number
SPPCODE	4	4	C	-	Anadromous species code (see Appendix K)
STOCKID	6	6	I	-	Pacific States Marine Fisheries Commission (PSMFC) stock ID code by stream ID and species (no significance to the data)

DATA STRUCTURE NAME: PRESENCE.EVT (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
LLID	13	13	C	-	IRICC stream ID
SPECIESID	2	2	I	-	PSMFC species code 1 = chinook 2 = coho 3 = steelhead 4 = sockeye 5 = chum 6 = pink
RUNID	2	2	I	-	PSMFC race code 1 = spring 2 = summer 3 = fall 4 = winter
BEGMEAS	9	9	N	2	Begin measure
ENDMEAS	9	9	N	2	End measure
USETYPE	2	2	I	-	PSMFC use type class 1 = presence, rearing and spawning 2 = presence and rearing 3 = presence and spawning 4 = presence only
STATUS	1	1	I	-	Stock status rank
REFID	5	5	C	-	Source reference ID
HUC	8	8	I	-	USGS hydrologic unit code
NAME	35	35	C	-	Stream name
REV_DATE	8	8	C	-	Revision date
REV_WHO	50	50	C	-	Revision source

DATA STRUCTURE NAME: BARRIERS.EVT

DATA STRUCTURE TYPE: INFO point event table

This event table contains known anadromous fish barriers by distance up stream from the outlet or confluence.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
ROUTE.NO	4	4	I	-	Route number
MEAS	9	9	N	2	Measure in feet
KILO_MEAS	9	9	N	4	Measure in kilometers
BLOCK	4	4	C	-	Barrier type - first letter is either an 'I' for impassable to all species or a 'P' for designating passable to at least one, the next two letters are defined as: C = cascades CU = culvert D = dam F = falls IF = insufficient flow L = log jam T = temperature U = unknown
ROUTE.ID	12	12	I	-	Route ID
HUC	8	8	I	-	USGS hydrologic unit code
RRN	17	17	C	-	EPA river reach number
LLID	13	13	C	-	IRICC stream ID
CHFA	1	1	I	-	Barrier to fall chinook
CHSP	1	1	I	-	Barrier to spring chinook
CHUM	1	1	I	-	Barrier to chum salmon
COHO	1	1	I	-	Barrier to coho salmon
PINK	1	1	I	-	Barrier to pink salmon
SOCK	1	1	I	-	Barrier to sockeye salmon
STSU	1	1	I	-	Barrier to summer steelhead

DATA STRUCTURE NAME: BARRIERS.EVT (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
STWI	1	1	I	-	Barrier to winter steelhead
SHAD	1	1	I	-	Barrier to white sturgeon
SMET	1	1	I	-	Barrier to green sturgeon
GRST	1	1	I	-	Barrier to smelt
WHST	1	1	I	-	Barrier to shad
NUMSPP	2	2	I	-	Number of species
NAME	60	60	C	-	Stream name
REV_DATE	8	8	C	-	Revision date
REV_WHO	50	50	C	-	Revision source

DATA STRUCTURE NAME: RESFISH.EVT

DATA STRUCTURE TYPE: INFO linear event table

The resident fish database design was based on processes and data types that were originally used in the Pacific Northwest Rivers Assessment Study. Data were collected on resident fish species present in a reach and for population origins, planted or naturally reproducing. The WDFW biologists providing the data relied upon professional knowledge based on field surveys, research projects, and experience. They were encouraged to use reports and survey data when required or involved other professionals in the field who had knowledge of the area. Resident fish information are of 1990 vintage and are not considered best available knowledge.

Resident fish information was is generalized to a river reach. More site-specific resident fish information is not available through this data set. The resident fish tables are formatted for use with dynamic segmentation or with conventional relates. The tables are reach specific but are structured as event tables to remain consistent with the anadromous fish tables. Data are coded by the EPA river reach code (RRN), ROUTE.ID and the LLID.

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
ROUTE.NO	4	4	I	-	Route number
SPPCODE	4	4	C	-	Resident fish species code (see Appendix K)
BEGMEAS	9	9	N	2	Begin measure

DATA STRUCTURE NAME: RESFISH.EVT (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
ENDMEAS	9	9	N	2	End measure
LENGTH	9	9	N	2	Length in feet
LLID	13	13	C	-	IRICC stream ID
ROUTE.ID	12	12	I	-	Route ID
RRN	17	17	C	-	EPA river reach number
HUC	8	8	I	-	USGS hydrologic unit code
STATUS	10	10	C	-	Stock status (currently for bull trout only)
STATCODE	1	1	I	-	Numeric rank of status (currently for bull trout only) 1 = historical presence 2 = unknown 3 = critical 4 = depressed 5 = moderately depressed 6 = healthy
FEDLIST *(not available at this time)*	2	2	C	-	*Federal protection status* *FE = endangered* *FT = threatened* *FC = candidate* *SS = sensitive*
STATELIST *(not available at this time)*	2	2	C	-	*State protection status* *SE = endangered* *ST = threatened* *SC = candidate* *SS = sensitive*
NAME	60	60	C	-	Stream name
REV_DATE	8	8	C	-	Revision date
REV_WHO	50	50	C	-	Revision source

NATIONAL WETLANDS INVENTORY DATABASE

Data Manager: Washington Department
of Ecology (360)407-6000

General Description

The National Wetlands Inventory (NWI) Database is an inventory system developed in 1974 by US Fish and Wildlife Service. Mapped at a scale of 1:24,000 or 1:62,000, NWI identifies wetlands and deep water habitats as either polygons or linear features. Attached to the mapped wetlands are descriptive codes based on the Cowardin classification system (Cowardin et al., 1979). Under the Cowardin system, wetlands are classified within a hierarchial organization according to plants, soils, and frequency of flooding. The NWI data is managed by the Washington Department of Ecology.

Resolution and Limitations

NWI data is collected through stereoscopic analysis of high altitude color infrared aerial photographs. Because the methodology and scope of work impose limitations on the accuracy of the data, there is an inherent margin of error. As there has been no attempt in the design of the inventory system to delineate wetland boundaries, the maps should not be used for regulatory purposes. They are useful as an initial means of identifying the general location and extent of wetlands within a region, and when used in conjunction with hydric soils maps and aerial surveys, as a starting point for developing more detailed wetland inventories.

Data Organization and Structure

The digital data is provided in two formats. The data is provided as a single coverage or is grouped into multiple coverages corresponding to US Geological Survey (USGS) 1:24,000, 7.5-minute scale topographic maps. If your digital data is a single coverage it will be called NWI, if multiple coverages they will be named based upon a seven digit numeric code, described in Appendix A, and preceded with an 'N'.

DATA STRUCTURE NAME: NWI or N<quadrangle code>

DATA STRUCTURE TYPE: Arc/Info polygon coverage

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
AREA	4	12	F	3	Area of the polygon in square feet.

DATA STRUCTURE NAME: NWI or N<quadrangle code> (continued)

ITEM NAME	WDTH	OPUT	TYP	N.DEC	DESCRIPTION
PERIMETER	4	12	F	3	Perimeter of the polygon in feet.
NWI#	4	5	B	-	Internal identifier
NWI-ID	4	5	B	-	User Identifier
FWS.CODE	16	16	C	-	NWI code, concatenation of ecological system, subsystem, class, subclass, water regime, and other modifier codes.

The NWI codes found in the attribute table of the NWI database are a concatenation of coding for the ecological system, subsystem, class, subclass, and modifying terms for water regime, chemistry, and soil. For example, in the FWS.CODE, a marine, subtidal, open water body would be coded M1OW, while a marshy area of persistent, emergent vegetation would be coded PEMP. Marine, Riverine, Lacustrine, and Estuarine ecological systems have subsystems, while Palustrine does not.

M = MARINE (ecological system)
- 1 = subtidal (ecological subsystem)
  - RB = rock bottom (class)
    - 1 = bedrock (subclass)
    - 2 = boulder
  - UB = unconsolidated bottom
    - 1 = cobble/gravel
    - 2 = sand
    - 3 = mud
    - 4 = organic
  - AB = aquatic bed
    - 1 = submergent algal
    - 2 = submergent vascular
    - 6 = unknown submergent
  - RF = reef
    - 1 = coral
    - 2 = worm
  - OW = open water
- 2 = intertidal
  - AB = aquatic bed
    - 1 = submergent algal
    - 2 = submergent vascular
    - 6 = unknown submergent

DATA STRUCTURE NAME: NWI or N<quadrangle code> (continued)

RF = reef
- 1 = coral
- 2 = worm

FL = flat
- 1 = cobble/gravel
- 2 = sand
- 3 = mud
- 6 = vegetated non-pioneer

RS = rocky shore
- 1 = bedrock
- 2 = boulder
- 6 = vegetated non-pioneer

BB = beach bar
- 1 = cobble/gravel
- 2 = sand

P = PALUSTRINE (ecological system)

RB = rock bottom (class)
- 1 = bedrock (subclass)
- 2 = boulder

UB = unconsolidated bottom
- 1 = cobble/gravel
- 2 = sand
- 3 = mud
- 4 = organic

AB = aquatic bed
- 1 = submergent algal
- 2 = submergent vascular
- 3 = submergent moss
- 4 = floating leaved
- 5 = floating
- 6 = unknown submergent
- 7 = unknown surface

FL = flat
- 1 = cobble/gravel
- 2 = sand
- 3 = mud
- 4 = organic
- 5 = vegetated pioneer
- 6 = vegetated non-pioneer

ML = moss/lichen
- 1 = moss
- 2 = lichen

DATA STRUCTURE NAME: NWI or N<quadrangle code> (continued)

EM = emergent
- 1 = persistent
- 2 = non-persistent
- 3 = narrow-leaved non-persistent
- 4 = broad-leaved non-persistent
- 5 = narrow-leaved persistent
- 6 = broad-leaved persistent

SS = scrub/shrub
- 1 = broad-leaved deciduous
- 2 = needle-leaved deciduous
- 3 = broad-leaved evergreen
- 4 = needle-leaved evergreen
- 5 = dead
- 6 = deciduous
- 7 = evergreen

FO = forested
- 1 = broad-leaved deciduous
- 2 = needle-leaved deciduous
- 3 = broad-leaved evergreen
- 4 = needle-leaved evergreen
- 5 = dead
- 6 = deciduous
- 7 = evergreen

OW = open water

R = RIVERINE (ecological system)
- 1 = tidal (subsystem)
- 2 = lower perennial
- 3 = upper perennial
- 4 = intermittent
- 5 = unknown perennial

(EMERGENTS found only in RIVERINE TIDAL and RIVERINE LOWER PERENNIAL subsystems, all other classes found in all RIVERINE subsystems)

EM = emergent (class)
- 2 = non-persistent (subclass)
- 3 = narrow-leaved non-persistent
- 4 = broad-leaved non-persistent

RB = rock bottom
- 1 = bedrock
- 2 = boulder

DATA STRUCTURE NAME: NWI or N<quadrangle code> (continued)

UB = unconsolidated bottom
1 = cobble/gravel
2 = sand
3 = mud
4 = organic
AB = aquatic bed
1 = submergent algal
2 = submergent vascular
3 = submergent moss
4 = floating leaved
5 = floating
6 = unknown submergent
7 = unknown surface
FL = flat
1 = cobble/gravel
2 = sand
3 = mud
4 = organic
5 = vegetated pioneer
6 = vegetated non-pioneer
SB = stream bed
1 = cobble/gravel
2 = sand
3 = mud
4 = organic
RS = rocky shore
1 = bedrock
2 = boulder
BB = beach/bar
1 = cobble/gravel
2 = sand
OW = open water

L = LACUSTRINE (ecological system)
1 = limnetic (subsystem)
RB = rock bottom (class)
1 = bedrock (subclass)
2 = boulder
UB = unconsolidated bottom
1 = cobble/gravel
2 = sand
3 = mud
4 = organic

DATA STRUCTURE NAME: NWI or N<quadrangle code> (continued)

AB = aquatic bed
1 = submergent algal
2 = submergent vascular
3 = submergent moss
4 = floating leaved
5 = floating
6 = unknown submergent
7 = unknown floating
OW = open water
2 = littoral
RB = rock bottom
1 = bedrock
2 = boulder
UB = unconsolidated bottom
1 = cobble/gravel
2 = sand
3 = mud
4 = organic
AB = aquatic bed
1 = submergent algal
2 = submergent vascular
3 = submergent moss
4 = floating leaved
5 = floating
6 = unknown submergent
7 = unknown surface
FL = flat
1 = cobble/gravel
2 = sand
3 = mud
4 = organic
5 = vegetated pioneer
6 = vegetated non-pioneer
RS = rocky shore
1 = bedrock
2 = boulder
BB = beach/bar
1 = cobble/gravel
2 = sand
EM = emergent
2 = non-persistent
3 = narrow-leaved non-persistent
4 = broad-leaved non-persistent

DATA STRUCTURE NAME: NWI or N<quadrangle code> (continued)

OW = open water

E = ESTUARINE (ecological system)
- 1 = subtidal (subsystem)
  - RB = rock bottom (class)
    - 1 = bedrock (subclass)
    - 2 = boulder
  - UB = unconsolidated bottom
    - 1 = cobble/gravel
    - 2 = sand
    - 3 = mud
    - 4 = organic
  - AB = aquatic bed
    - 1 = submergent algal
    - 2 = submergent vascular
    - 4 = floating leaved
    - 5 = floating
    - 6 = unknown submergent
    - 7 = unknown surface
  - RF = reef
    - 2 = mollusc
    - 3 = worm
  - OW = open water
- 2 = intertidal
  - AB = aquatic bed
    - 1 = submergent algal
    - 2 = submergent vascular
    - 6 = unknown submergent
    - 7 = unknown surface
  - RF = reef
    - 2 = mollusc
    - 3 = worm
  - FL = flat
    - 1 = cobble/gravel
    - 2 = sand
    - 3 = mud
    - 4 = organic
    - 5 = vegetated pioneer
    - 6 = vegetated non-pioneer

DATA STRUCTURE NAME: NWI or N<quadrangle code> (continued)

SB = stream bed
- 1 = cobble/gravel
- 2 = sand
- 3 = mud
- 4 = organic

RS = rocky shore
- 1 = bedrock
- 2 = boulder
- 6 = vegetated non-pioneer

BB = beach bar
- 1 = cobble/gravel
- 2 = sand

EM = emergent
- 1 = persistent
- 2 = non-persistent
- 3 = narrow-leaved non-persistent
- 4 = broad leaved non-persistent
- 5 = narrow-leaved persistent
- 6 = broad-leaved persistent

SS = scrub/shrub
- 1 = broad-leaved deciduous
- 2 = broad-leaved evergreen
- 4 = needle-leaved evergreen
- 5 = dead
- 6 = deciduous
- 7 = evergreen

FO = forested
- 1 = broad-leaved deciduous
- 2 = broad-leaved evergreen
- 3 = needle-leaved evergreen
- 5 = dead
- 6 = deciduous
- 7 = evergreen

MODIFYING TERMS -
These are added to the class or subclass of the five ecological classes to more adequately describe wetland and aquatic habitats. The FARMED modifier can also be applied at the ecological system level.

DATA STRUCTURE NAME: NWI or N<quadrangle code> (continued)

WATER REGIME

Non-tidal

- A = temporary
- B = saturated
- C = seasonal
- D = seasonal well-drained
- E = seasonal saturated
- F = semipermanent
- G = intermittently exposed
- H = permanent
- J = intermittently flooded
- K = artificial
- Z = intermittently exposed permanent
- W = intermittently flooded temporary
- Y = saturated/semipermanent/seasonals
- U = unknown

Tidal

- K = artificial
- L = subtidal
- M = irregularly exposed
- N = regular
- P = irregular
- R = seasonal tidal
- S = temporary tidal
- T = semipermanent tidal
- V = permanent tidal
- U = unknown

WATER CHEMISTRY

Coastal salinity

- 1 = hyperhaline
- 2 = euhaline
- 3 = mixohaline (brackish)
- 4 = polyhaline
- 5 = mesohaline
- 6 = oligohaline
- 0 = fresh

Inland salinity

- 7 = hypersaline
- 8 = eusaline
- 9 = mixosaline
- 0 = fresh

DATA STRUCTURE NAME: NWI or N<quadrangle code> (continued)

Ph modifiers for all freshwater
- a = acid
- t = circumneutral
- l = alkaline

SOIL
- g = organic
- n = mineral

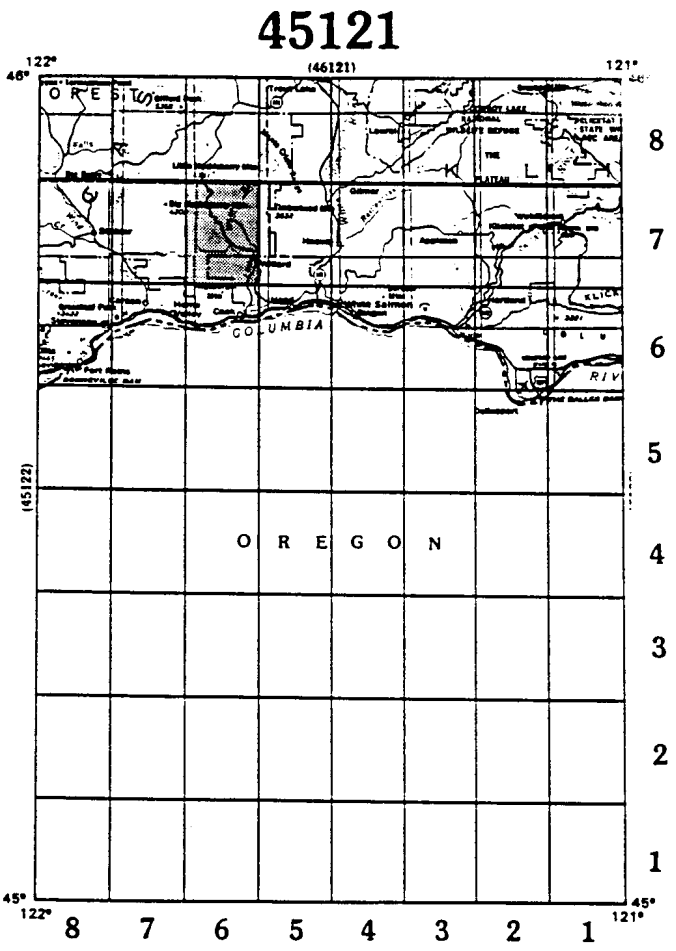
SPECIAL MODIFIERS
- b = beaver
- d = partially drained/ditched
- f = farmed
- h = diked/impounded
- r = artificial
- s = spoil
- x = excavated

Appendix A. Derivation of Quadrangle Codes (quadcodes) for USGS 7.5-Minute Maps

DERIVATION OF QUADRANGLE CODES (QUADCODES)
FOR USGS 7.5-MINUTE MAP SHEETS

The quadcode for a US Geological Survey (USGS) 7.5-minute map sheet is a seven-digit numeric code. The first five digits of the code identify the latitude and longitude of the southeast corner of a one degree block of 7.5-minute quadrangles. A one degree block is divided into 8 columns and 8 rows of quadrangles resulting in a total of 64 quadrangles. Each row and column is numbered consecutively beginning at one and using the southeast corner of the block as the origin. The sixth digit of the quadcode identifies the row containing the map sheet while the seventh digit identifies the column.

The diagram below identifies the USGS 7.5-minute quadrangle associated with the quadcode



4512176 and named WILLARD.

It should be noted that USGS 15-minute maps represent the same area portrayed on four 7.5-minute quadrangle maps. As a result, a 15-minute map is represented by four quadcodes.

Appendix B. Species Use Codes

B	Breeding occurrence
CR	Communal roost
GR	General range
HO	Haulout
IO	Individual occurrence
IR	Individual roost
M	Migration
PA	Parturition
RI	Regularly occurring individual
RLC	Regular large concentration
RSC	Regular small concentration
RC	Regular concentration, relative size not indicated
T	Breeding territory
L	Lek
CF	Peregrine falcon cross foster site
H	Peregrine falcon hack site
E	Peregrine falcon eyrie

Appendix C. Habitat Codes

ALPINE	Alpine areas
ASPEN	Quaking aspen stands
BAY	Bay/estuary (Coastal Zone Atlas-CZA)
CAVE	Caves
CLIFF	Cliff/bluff
DUNE	Sand dunes
EEL	Eelgrass meadows
ESTUR	Estuarine zone (CZA)
GRASS	Grasslands
ISLAND	Islands
JUNIP	Juniper savannah
KELP	Kelp beds
LAGOON	Lagoon (CZA)
MEADOW	Meadows
OAK	Oak woodland
OG	Old growth/mature forest
POOL	Tide pools
PRAIR	Prairies
RIPAR	Riparian zones
RNOS	Rural natural open space
ROCKY	Rocky shores
SHRUB	Shrub-steppe
SLOUGH	Slough (CZA)
SNAG	Snag rich areas
STEPPE	Steppe
TALUS	Talus
UNOS	Urban natural open space
WET	Wetlands. Discriminate coastal marsh by using land use code 68, estuarine marsh, in the land use field.

Appendix D. Special Criteria Codes

D Damage control area. Applies to an identified winter range where WDFW manages against the species. Could be applied to areas which were historical ranges but where management practices such as fencing now exclude wildlife use but may also be areas for potential WDFW acquisition.

EW Elk wallow

HC Very high concentration. This applies to game species for which an identified concentration area is known and mapped and is significant. There are also areas where animals are extremely concentrated and identifiable. Mapped as a polygon within the winter range polygon.

AS Artificial structure

F Artificial feeding site

T Raptor territory; defended area around an active nest.

Appendix E. Special Species Codes

The following codes are used to identify species groups when there is no management need to distinguish multiple species use of an area.

BIGA	Big game (excluding species and limiting habitats defined as priority for other mapping phases, e.g. elk winter range)
CANED	Cavity-nesting ducks
GREBE	Grebe species
GULL	Gull species
PENI	Pennipeds
SEBI	Seabird (excluding gulls) concentrations
SHBI	Shorebird concentrations
SWAN	Swan species
WAFO	Waterfowl concentrations

Appendix F. Information Source Codes

GENERAL SOURCES

LIT	Literature
LOCAL	Local knowledge of individuals not involved professionally in fish and wildlife management.
PROF	Knowledge of one or more professionals working in fish and wildlife science.
SIGN	Vocalization, track, or other sign

MAPS

CZA	Coastal Zone Atlas of Washington, Washington Department of Ecology
GSMAP	US Geologic Survey Maps (various scales)
DNRMAP	Washington Department of Natural Resources (DNR) Public Lands Maps (1:100,000 scale)
BLMMAP	US Bureau of Land Management Ownership Map (1:100,000 scale)
FSMAP	US Forest Service (USFS) maps

REMOTE SENSING

MSS	LANDSAT satellite MSS sensor
ORTHO	DNR, USFS, or other ortho photo
PHOTO	Photo interpreted from quality field photography
SAT	Satellite information other than SPOT or LANDSAT
SPOT	SPOT satellite
TM	LANDSAT satellite TM sensor

SURVEYS

BROOD	Brood survey
CALL	Survey call count/gobble route
DRIVE	Drive by survey
HERD	Herd composition count
HUNT	Hunter survey, field checks, report cards, etc.
NEST	Nest site survey
TELEM	Telemetry study/survey
TRAN	Non-winter transect survey
TREND	Regularly conducted survey to monitor population trends
WTRAN	Winter transect survey

Appendix G. Species Codes (derived from genus and species)

EOCODE	COMMON NAME	SCIENTIFIC NAME
ACAL	CHISELMOUTH	ACROCHEILUS ALUTACEUS
ACCO	COOPER'S HAWK	ACCIPITER COOPERII
ACGE	NORTHERN GOSHAWK	ACCIPITER GENTILIS
ACMA	SPOTTED SANDPIPER	ACTITIS MACULARIA
ACME	GREEN STURGEON	ACIPENSER MEDIROSTRIS
ACST	SHARP-SHINNED HAWK	ACCIPITER STRIATUS
ACTR	WHITE STURGEON	ACIPENSER TRANSMONTANUS
ADBR	CALIFORNIA SISTER	ADELPHA BREDOWII CALIFORNICA
AEAC	NORTHERN SAW-WHET OWL	AEGOLIUS ACADICUS
AECL	CLARK'S GREBE	AECHMOPHORUS CLARKII
AEFU	BOREAL OWL	AEGOLIUS FUNEREUS
AEOC	WESTERN GREBE	AECHMOPHORUS OCCIDENTALIS
AESA	WHITE-THROATED SWIFT	AERONAUTES SAXATALIS
AGBE	BELLER'S GROUND BEETLE	AGONUM BELLERI
AGPH	RED-WINGED BLACKBIRD	AGELAIUS PHOENICEUS
AISP	WOOD DUCK	AIX SPONSA
ALAL	MOOSE	ALCES ALCES
ALAR	EURASIAN SKYLARK	ALAUDA ARVENSIS
ALCH	CHUKAR	ALECTORIS CHUKAR
ALNE	NEWCOMB'S LITTORINE SNAIL	ALGAMORDA NEWCOMBIANA
ALSA	AMERICAN SHAD	ALOSA SAPIDISSIMA
AMBE	SAGE SPARROW	AMPHISPIZA BELLI
AMBI	BLACK-THROATED SPARROW	AMPHISPIZA BILINEATA
AMGR	NORTHWESTERN SALAMANDER	AMBYSTOMA GRACILE
AMLE	LECONTE'S SPARROW	AMMOSPIZA LECONTEII
AMMA	LONG-TOED SALAMANDER	AMBYSTOMA MACRODACTYLUM
AMRU	ROCK BASS	AMBLOPLITES RUPESTRIS
AMSA	GRASSHOPPER SPARROW	AMMODRAMUS SAVANNARUM
AMTI	TIGER SALAMANDER	AMBYSTOMA TIGRINUM
AMVI	ROADSIDE SKIPPER	AMBLYSCIRTES VIALIS
ANAAM	AMERICAN WIGEON	ANAS AMERICANA
ANAC	NORTHERN PINTAIL	ANAS ACUTA
ANAL	GREATER WHITE-FRONTED GOOSE	ANSER ALBIFRONS
ANAM	PRONGHORN	ANTILOCAPRA AMERICANA
ANCA	CALIFORNIA FLOATER	ANODONTA CALIFORNIENSIS
ANCL	NORTHERN SHOVELER	ANAS CLYPEATA
ANCR	GREEN-WINGED TEAL	ANAS CRECCA
ANCY	CINNAMON TEAL	ANAS CYANOPTERA
ANDI	BLUE-WINGED TEAL	ANAS DISCORS
ANPA	PALLID BAT	ANTROZOUS PALLIDUS
ANPE	EURASIAN WIGEON	ANAS PENELOPE
ANPL	MALLARD	ANAS PLATYRHYNCHOS
ANRU	AMERICAN BLACK DUCK	ANAS RUBRIPES
ANRUBE	AMERICAN PIPIT	ANTHUS RUBESCENS
ANSP	WATER PIPIT	ANTHUS SPINOLETTA
ANST	GADWALL	ANAS STREPERA
APCO	SCRUB JAY	APHELOCOMA COERULESCENS
APRU	MOUNTAIN BEAVER	APLODONTIA RUFA
APVI	SURFBIRD	APHRIZA VIRGATA
AQCH	GOLDEN EAGLE	AQUILA CHRYSAETOS
ARAL	BLACK-CHINNED HUMMINGBIRD	ARCHILOCHUS ALEXANDRI

AREIN	RUDDY TURNSTONE	ARENARIA INTERPRES
ARHE	GREAT BLUE HERON	ARDEA HERODIAS
ARME	BLACK TURNSTONE	ARENARIA MELANOCEPHALA
ASFL	SHORT-EARED OWL	ASIO FLAMMEUS
ASOT	LONG-EARED OWL	ASIO OTUS
ASTR	TAILED FROG	ASCAPHUS TRUEI
ATCU	BURROWING OWL	ATHENE CUNICULARIA
AYAF	LESSER SCAUP	AYTHYA AFFINIS
AYAM	REDHEAD	AYTHYA AMERICANA
AYCO	RING-NECKED DUCK	AYTHYA COLLARIS
AYFU	TUFTED DUCK	AYTHYA FULIGULA
AYMA	GREATER SCAUP	AYTHYA MARILA
AYVA	CANVASBACK	AYTHYA VALISINERIA
BAAC	MINKE WHALE	BALAENOPTERA ACUTOROSTRATA
BABO	SEI WHALE	BALAENOPTERA BOREALIS
BAGL	BLACK RIGHT WHALE	BALAENA GLACIALIS
BALO	UPLAND SANDPIPER	BARTRAMIA LONGICAUDA
BAMU	BLUE WHALE	BALAENOPTERA MUSCULUS
BAPH	FIN WHALE	BALAENOPTERA PHYSALUS
BEBA	NORTH PACIFIC BOTTLE-NOSED WHALE	BERARDIUS BAIRDII
BOAS	ASTARTE FRITILLARY	BOLORIA ASTARTE
BOBE	MEADOW FRITILLARY	BOLORIA BELLONA SSP.
BOCE	CEDAR WAXWING	BOMBYCILLA CEDRORUM
BOFR	FREYA'S FRITILLARY	BOLORIA FREIJA FREIJA
BOGA	BOHEMIAN WAXWING	BOMBYCILLA GARRULUS
BOLE	AMERICAN BITTERN	BOTAURUS LENTIGINOSUS
BOSE	SILVER-BORDERED BOG FRITILLARY	BOLORIA SELENE ATROCOSTALIS
BOUM	RUFFED GROUSE	BONASA UMBELLUS
BRBE	BRANT	BRANTA BERNICLA
BRBR	KITTLITZ'S MURRELET	BRACHYRAMPHUS BREVIROSTRIS
BRCA	CANADA GOOSE	BRANTA CANADENSIS
BRCAF	VANCOUVER CANADA GOOSE	BRANTA CANADENSIS FULVA
BRCAL	ALEUTIAN CANADA GOOSE	BRANTA CANADENSIS LEUCOPAREIA
BRCAMI	CACKLING CANADA GOOSE	BRANTA CANADENSIS MINIMA
BRCAMO	WESTERN CANADA GOOSE	BRANTA CANADENSIS MOFFITTI
BRCAO	DUSKY CANADA GOOSE	BRANTA CANADENSIS OCCIDENTALIS
BRCAT	TAVERNER'S CANADA GOOSE	BRANTA CANADENSIS TAVERNERI
BRMA	MARBLED MURRELET	BRACHYRAMPHUS MARMORATUS
BUAL	BUFFLEHEAD	BUCEPHALA ALBEOLA
BUBO	WESTERN TOAD	BUFO BOREAS
BUCL	COMMON GOLDENEYE	BUCEPHALA CLANGULA
BUIB	CATTLE EGRET	BUBULCUS IBIS
BUIS	BARROW'S GOLDENEYE	BUCEPHALA ISLANDICA
BUJA	RED-TAILED HAWK	BUTEO JAMAICENSIS
BULA	ROUGH-LEGGED HAWK	BUTEO LAGOPUS
BULI	RED-SHOULDERED HAWK	BUTEO LINEATUS
BUPL	BROAD-WINGED HAWK	BUTEO PLATYPTERUS
BURE	FERRUGINOUS HAWK	BUTEO REGALIS
BUST	GREEN-BACKED HERON	BUTORIDES STRIATUS
BUSW	SWAINSON'S HAWK	BUTEO SWAINSONI
BUVI	GREAT HORNED OWL	BUBO VIRGINIANUS
BUVIRE	GREEN HERON	BUTORIDES VIRESCENS
BUWO	WOODHOUSE'S TOAD	BUFO WOODHOUSEI
CAAC	SHARP-TAILED SANDPIPER	CALIDRIS ACUMINATA
CAAF	IMMACULATE GREEN HAIRSTREAK	CALLOPHRYS AFFINUS AFFINIS

EOCODE	COMMON NAME	SCIENTIFIC NAME
CAALP	DUNLIN	CALIDRIS ALPINA
CAAN	ANNA'S HUMMINGBIRD	CALYPTE ANNA
CAAU	GOLDFISH	CARASSIUS AURATUS
CAAUR	TURKEY VULTURE	CATHARTES AURA
CABA	BAIRD'S SANDPIPER	CALIDRIS BAIRDII
CACA	LONGNOSE SUCKER	CATOSTOMUS CATOSTOMUS
CACAL	CALIFORNIA QUAIL	CALLIPEPLA CALIFORNICA
CACANU	RED KNOT	CALIDRIS CANUTUS
CACAR	LOGGERHEAD SEA TURTLE	CARETTA CARETTA
CACAS	CASSIN'S FINCH	CARPODACUS CASSINII
CACO	BRIDGELIP SUCKER	CATOSTOMUS COLUMBIANUS
CADUDU	BRAMBLE GREEN HAIRSTREAK	CALLOPHRYS DUMETORUM DUMETORUM
CADUOR	OREGON GREEN HAIRSTREAK	CALLOPHRYS DUMETORUM OREGONENSIS
CAFL	COMMON REDPOLL	CARDUELIS FLAMMEA
CAFU	VEERY	CATHARUS FUSCESCENS
CAFUS	WHITE-RUMPED SANDPIPER	CALIDRIS FUSCICOLLIS
CAGU	HERMIT THRUSH	CATHARUS GUTTATUS
CAHI	STILT SANDPIPER	CALIDRIS HIMANTOPUS
CALA	LAPLAND LONGSPUR	CALCARIUS LAPPONICUS
CALAL	SANDERLING	CALIDRIS ALBA
CALAT	COYOTE	CANIS LATRANS
CALFE	CURLEW SANDPIPER	CALIDRIS FERRUGINEA
CALPU	SEMIPALMATED SANDPIPER	CALIDRIS PUSILLA
CALU	GRAY WOLF	CANIS LUPUS
CAMA	LARGESCALE SUCKER	CATOSTOMUS MACROCHEILUS
CAMAU	WESTERN SANDPIPER	CALIDRIS MAURI
CAME	LARK BUNTING	CALAMOSPIZA MELANOCORYS
CAMEL	PECTORAL SANDPIPER	CALIDRIS MELANOTOS
CAMI	LEAST SANDPIPER	CALIDRIS MINUTILLA
CAOR	CHESTNUT-COLLARED LONGSPUR	CALCARIUS ORNATUS
CAPAMA	ARCTIC SKIPPER	CARTEROCEPHALUS PALAEMON MANDAN
CAPI	PINE SISKIN	CARDUELIS PINUS
CAPL	MOUNTAIN SUCKER	CATOSTOMUS PLATYRHYNCHUS
CAPS	LESSER GOLDFINCH	CARDUELIS PSALTRIA
CAPT	ROCK SANDPIPER	CALIDRIS PTILOCNEMIS
CARME	HOUSE FINCH	CARPODACUS MEXICANUS
CARPU	PURPLE FINCH	CARPODACUS PURPUREUS
CASAL	GREAT EGRET	CASMERODIUS ALBUS
CASCAN	BEAVER	CASTOR CANADENSIS
CASE	WILLET	CATOPTROPHORUS SEMIPALMATUS
CASHNE	CANYON GREEN HAIRSTREAK	CALLOPHRYS SHERIDANII NEOPERPLEXA
CASK	SOUTH POLAR SKUA	CATHARACTA SKUA
CASP	SALISH SUCKER	CATOSTOMUS SP.
CATME	CANYON WREN	CATHERPES MEXICANUS
CATR	AMERICAN GOLDFINCH	CARDUELIS TRISTIS
CAUR	NORTHERN FUR SEAL	CALLORHINUS URSINUS
CAUS	SWAINSON'S THRUSH	CATHARUS USTULATUS
CEAL	BELTED KINGFISHER	CERYLE ALCYON
CEAM	BROWN CREEPER	CERTHIA AMERICANA
CEAREC	BRANDED AZURES	CELASTRINA ARGIOLUS ECHO
CECO	PIGEON GUILLEMOT	CEPPHUS COLUMBA
CEEL	ELK	CERVUS ELAPHUS
CEELN	ROCKY MOUNTAIN ELK	CERVUS ELAPHUS NELSONI

EOCODE	COMMON NAME	SCIENTIFIC NAME
CEELR	ROOSEVELT ELK	CERVUS ELAPHUS ROOSEVELTI
CEMO	RHINOCEROS AUKLET	CERORHINCA MONOCERATA
CEUR	SAGE GROUSE	CENTROCERCUS UROPHASIANUS
CHAL	SNOWY PLOVER	CHARADRIUS ALEXANDRINUS
CHBO	RUBBER BOA	CHARINA BOTTAE
CHCAE	SNOW GOOSE	CHEN CAERULESCENS
CHCAN	EMPEROR GOOSE	CHEN CANAGICA
CHGR	LARK SPARROW	CHONDESTES GRAMMACUS
CHMI	COMMON NIGHTHAWK	CHORDEILES MINOR
CHMO	MOUNTAIN PLOVER	CHARADRIUS MONTANUS
CHNI	BLACK TERN	CHLIDONIAS NIGER
CHPAPA	NORTHERN CHECKERSPOT	CHLOSYNE PALLA PALLA
CHPI	PAINTED TURTLE	CHRYSEMYS PICTA
CHRO	ROSS' GOOSE	CHEN ROSSII
CHSE	SEMIPALMATED PLOVER	CHARADRIUS SEMIPALMATUS
CHVA	VAUX'S SWIFT	CHAETURA VAUXI
CHVO	KILLDEER	CHARADRIUS VOCIFERUS
CICO	COLUMBIA RIVER TIGER BEETLE	CICINDELA COLUMBICA
CICY	NORTHERN HARRIER	CIRCUS CYANEUS
CIME	AMERICAN DIPPER	CINCLUS MEXICANUS
CIPA	MARSH WREN	CISTOTHORUS PALUSTRIS
CLCA	WESTERN RED-BACKED VOLE	CLETHRIONOMYS CALIFORNICUS
CLGA	SOUTHERN RED-BACKED VOLE	CLETHRIONOMYS GAPPERI
CLHY	OLDSQUAW	CLANGULA HYEMALIS
CLMA	WESTERN POND TURTLE	CLEMMYS MARMORATA
CLMY	GREEN SEA TURTLE	CHELONIA MYDAS
COAL	COASTRANGE SCULPIN	COTTUS ALEUTICUS
COAM	YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS
COAS	PRICKLY SCULPIN	COTTUS ASPER
COAU	NORTHERN FLICKER	COLAPTES AURATUS
COBA	MOTTLED SCULPIN	COTTUS BAIRDI
COBE	PIUTE SCULPIN	COTTUS BELDINGI
COBO	OLIVE-SIDED FLYCATCHER	CONTOPUS BOREALIS
COBR	AMERICAN CROW	CORVUS BRACHYRHYNCHOS
COCA	NORTHWESTERN CROW	CORVUS CAURINUS
COCL	LAKE WHITEFISH	COREGONUS CLUPEAFORMIS
COCOG	SLIMY SCULPIN	COTTUS COGNATUS
COCON	SHORTHEAD SCULPIN	COTTUS CONFUSUS
COCOR	COMMON RAVEN	CORVUS CORAX
COER	BLACK-BILLED CUCKOO	COCCYZUS ERYTHROPTHALMUS
COFA	BAND-TAILED PIGEON	COLUMBA FASCIATA
COGU	RIFFLE SCULPIN	COTTUS GULOSUS
COINS	ISLAND OCHRE RINGLET	COENONYMPHA "TULLIA" INSULANA
COLCO	RACER	COLUBER CONSTRICTOR
COLI	ROCK DOVE	COLUMBA LIVIA
COMA	MARGINED SCULPIN	COTTUS MARGINATUS
CONA	LABRADOR SULPHUR	COLIAS NASTES STRECKERI
CONO	YELLOW RAIL	COTURNICOPS NOVEBORACENSIS
CONTE	SHARP-TAILED SNAKE	CONTIA TENUIS
COOCOC	WESTERN SULPHUR	COLIAS OCCIDENTALIS OCCIDENTALIS
COPE	RETICULATE SCULPIN	COTTUS PERPLEXUS
COPL	LAKE CHUB	COUESIUS PLUMBEUS
CORH	TORRENT SCULPIN	COTTUS RHOTHEUS

EOCODE	COMMON NAME	SCIENTIFIC NAME
COSO	WESTERN WOOD-PEWEE	CONTOPUS SORDIDULUS
COVE	EVENING GROSBEAK	COCCOTHRAUSTES VESPERTINUS
COVI	NORTHERN BOBWHITE	COLINUS VIRGINIANUS
CRVI	WESTERN RATTLESNAKE	CROTALUS VIRIDIS
CYAG	SHINER PERCH	CYMATOGASTER AGGREGATA
CYBU	TRUMPETER SWAN	CYGNUS BUCCINATOR
CYCA	CARP	CYPRINUS CARPIO
CYCO	TUNDRA SWAN	CYGNUS COLUMBIANUS
CYCR	BLUE JAY	CYANOCITTA CRISTATA
CYNI	BLACK SWIFT	CYPSELOIDES NIGER
CYPS	PARAKEET AUKLET	CYCLORRHYNCHUS PSITTACULA
CYST	STELLER'S JAY	CYANOCITTA STELLERI
CYVI	AMERICAN PAINTED LADY	VANESSA VIRGINIENSIS
DEBI	FULVOUS WHISTLING DUCK	DENDROCYGNA BICOLOR
DECA	SPRUCE GROUSE	DENDRAGAPUS CANADENSIS
DECO	LEATHERBACK SEA TURTLE	DERMOCHELYS CORIACEA
DECOR	YELLOW-RUMPED WARBLER	DENDROICA CORONATA
DEDE	SADDLE-BACKED DOLPHIN	DELPHINUS DELPHIS
DENI	BLACK-THROATED GRAY WARBLER	DENDROICA NIGRESCENS
DEOB	BLUE GROUSE	DENDRAGAPUS OBSCURUS
DEOC	HERMIT WARBLER	DENDROICA OCCIDENTALIS
DEPA	PALM WARBLER	DENDROICA PALMARUM
DEPE	YELLOW WARBLER	DENDROICA PETECHIA
DEPEN	CHESTNUT-SIDED WARBLER	DENDROICA PENNSYLVANICA
DEST	BLACKPOLL WARBLER	DENDROICA STRIATA
DETI	CAPE MAY WARBLER	DENDROICA TIGRINA
DETO	TOWNSEND'S WARBLER	DENDROICA TOWNSENDI
DIAL	SHORT-TAILED ALBATROSS	DIOMEDEA ALBATRUS
DICA	SHY ALBATROSS	DIOMEDEA CAUTA
DICO	COPE'S GIANT SALAMANDER	DICAMPTODON COPEI
DIIM	LAYSAN ALBATROSS	DIOMEDEA IMMUTABILIS
DINI	BLACK-FOOTED ALBATROSS	DIOMEDEA NIGRIPES
DIOR	ORD'S KANGAROO RAT	DIPODOMYS ORDII
DIPU	RING-NECKED SNAKE	DIADOPHIS PUNCTATUS
DITE	PACIFIC GIANT SALAMANDER	DICAMPTODON TENEBROSUS
DIVI	VIRGINIA OPOSSUM	DIDELPHIS VIRGINIANA
DOID	LONG-HORNED LEAF BEETLE	DONACIA IDOLA
DOOR	BOBOLINK	DOLICHONYX ORYZIVORUS
DRPI	PILEATED WOODPECKER	DRYOCOPUS PILEATUS
DUCA	GRAY CATBIRD	DUMETELLA CAROLINENSIS
EAHA	HATCH'S CLICK BEETLE	EANUS HATCHII
EGCA	LITTLE BLUE HERON	EGRETTA CAERULEA
EGTH	SNOWY EGRET	EGRETTA THULA
ELCA	BLACK-SHOULDERED KITE	ELANUS CAERULEUS
ELCO	NORTHERN ALLIGATOR LIZARD	ELGARIA COERULEA
ELLE	WHITE-TAILED KITE	ELANUS LEUCURUS
ELMU	SOUTHERN ALLIGATOR LIZARD	ELGARIA MULTICARINATA
EMDI	PACIFIC-SLOPE FLYCATCHER	EMPIDONAX DIFFICILIS
EMHA	HAMMOND'S FLYCATCHER	EMPIDONAX HAMMONDII
EMMI	LEAST FLYCATCHER	EMPIDONAX MINMUS
EMOB	DUSKY FLYCATCHER	EMPIDONAX OBERHOLSERI
EMOC	CORDILLERAN FLYCATCHER	EMPIDONAX OCCIDENTALIS
EMTR	WILLOW FLYCATCHER	EMPIDONAX TRAILLII

EOCODE	COMMON NAME	SCIENTIFIC NAME
EMWR	GRAY FLYCATCHER	EMPIDONAX WRIGHTII
ENES	ENSATINA	ENSATINA ESCHSCHOLTZI
ENLU	SEA OTTER	ENHYDRA LUTRIS
ENLULU	SEA OTTER	ENHYDRA LUTRIS LUTRIS
ENLUNE	SEA OTTER	ENHYDRA LUTRIS NEREIS
ENTR	PACIFIC LAMPREY	ENTOSPHENUS TRIDENTATUS
EPCLCA	SILVER-SPOTTED SKIPPER	EPARGYREUS CLARUS CALIFORNICUS
EPFU	BIG BROWN BAT	EPTESICUS FUSCUS
ERAF	AFRANIUS' DUSKYWING	ERYNNIS AFRANIUS
ERAL	HORNED LARK	EREMOPHILA ALPESTRIS
ERALS	STREAKED HORNED LARK	EREMOPHILA ALPESTRIS STRIGATA
ERDO	PORCUPINE	ERETHIZON DORSATUM
ERIC	DREAMY DUSKYWING	ERYNNIS ICELUS
ERPA	PACUVIUS' DUSKYWING	ERYNNIS PACUVIUS LILIUS
ERPE	PERSIUS' DUSKYWING	ERYNNIS PERSIUS
ERPR	PROPERTIUS' DUSKYWING	ERYNNIS PROPERTIUS
ESAN	GRASS PICKEREL	ESOX AMERICANUS
ESLU	NORTHERN PIKE	ESOX LUCIUS
ESRO	GRAY WHALE	ESCHRICHTIUS ROBUSTUS
EUCA	RUSTY BLACKBIRD	EUPHAGUS CAROLINUS
EUCHPE	PERDICCAS CHECKERSPOT	EUPHYDRYAS CHALCEDONA PERDICCAS
EUCHWA	SNOWBERRY CHECKERSPOT	EUPHYDRYAS CHALCEDONA WALLACENSIS
EUCY	BREWER'S BLACKBIRD	EUPHAGUS CYANOCEPHALUS
EUEDYA	WHULGE CHECKERSPOT(TAYLOR'S CHECKERSPOT)	EUPHYDRYAS EDITHA TAYLORI
EUJU	NORTHERN SEA LION	EUMETOPIUS JUBATUS
EUMA	SPOTTED BAT	EUDERMA MACULATUM
EUMO	EURASIAN DOTTEREL	CHARADRIUS MORINELLUS
EUSK	WESTERN SKINK	EUMECES SKILTONIANUS
EUVE	DUN SKIPPER	EUPHYES VESTRIS VESTRIS
EUVEKI	KIOWA SKIPPER	EUPHYES VESTRIS KIOWA
EVCOCO	EASTERN TAILED BLUE	EVERES COMYNTAS COMYNTAS
FACO	MERLIN	FALCO COLUMBARIUS
FAME	PRAIRIE FALCON	FALCO MEXICANUS
FAPE	PEREGRINE FALCON	FALCO PEREGRINUS
FAPEA	AMERICAN PEREGRINE FALCON	FALCO PEREGRINUS ANATUM
FAPEP	PEALE'S PEREGRINE FALCON	FALCO PEREGRINUS PEALEI
FAPET	ARCTIC PEREGRINE FALCON	FALCO PEREGRINUS TUNDRIUS
FARU	GYRFALCON	FALCO RUSTICOLUS
FASP	AMERICAN KESTREL	FALCO SPARVERIUS
FECO	MOUNTAIN LION	FELIS CONCOLOR
FINU	GIANT COLUMBIA RIVER LIMPET	FISHEROLA NUTTALLI
FRCI	TUFTED PUFFIN	FRATERCULA CIRRHATA
FRCO	HORNED PUFFIN	FRATERCULA CORNICULATA
FRMA	MAGNIFICENT FRIGATEBIRD	FREGATA MAGNIFICENS
FUAM	AMERICAN COOT	FULICA AMERICANA
FUGL	NORTHERN FULMAR	FULMARUS GLACIALIS
GAAC	THREE-SPINE STICKLEBACK	GASTEROSTEUS ACULEATUS
GAAD	YELLOW-BILLED LOON	GAVIA ADAMSII
GAAF	MOSQUITOFISH	GAMBUSIA AFFINIS
GAGA	COMMON SNIPE	GALLINAGO GALLINAGO
GAIM	COMMON LOON	GAVIA IMMER
GAPA	PACIFIC LOON	GAVIA PACIFICA
GAST	RED-THROATED LOON	GAVIA STELLATA

EOCODE	COMMON NAME	SCIENTIFIC NAME
GETR	COMMON YELLOWTHROAT	GEOTHLYPIS TRICHAS
GIBI	TUI CHUB	GILA BICOLOR
GLGN	NORTHERN PYGMY-OWL	GLAUCIDIUM GNOMA
GLMA	SHORT-FINNED PILOT WHALE	GLOBICEPHALA MACRORHYNCHUS
GLSA	NORTHERN FLYING SQUIRREL	GLAUCOMYS SABRINUS
GOLY	LYNN'S CLUBTAIL	GOMPHUS LYNNAE
GRCA	SANDHILL CRANE	GRUS CANADENSIS
GRGR	RISSO'S DOLPHIN	GRAMPUS GRISEUS
GUGU	WOLVERINE	GULO GULO
GYCY	PINYON JAY	GYMNORHINUS CYANOCEPHALUS
HABA	BLACK OYSTERCATCHER	HAEMATOPUS BACHMANI
HAGR	GOLDEN HAIRSTREAK	HABRODAIS GRUNUS HERRI
HALE	BALD EAGLE	HALIAEETUS LEUCOCEPHALUS
HATI	CORAL HAIRSTREAK	HARKENCLENUS TITUS IMMACULOSUS
HECOOR	OREGON BRANDED SKIPPER	HESPERIA COMMA OREGONIA
HEIN	WANDERING TATTLER	HETEROSCELUS INCANUS
HEJU	JUBA SKIPPER	HESPERIA JUBA
HENE	NEVADA SKIPPER	HESPERIA NEVADA
HIHI	HARLEQUIN DUCK	HISTRIONICUS HISTRIONICUS
HIME	BLACK-NECKED STILT	HIMANTOPUS MEXICANUS
HIPY	CLIFF SWALLOW	HIRUNDO PYRRHONOTA
HIRU	BARN SWALLOW	HIRUNDO RUSTICA
HYRE	PACIFIC TREEFROG	HYLA REGILLA
HYTO	NIGHT SNAKE	HYPSIGLENA TORQUATA
ICFU	BLUE CATFISH	ICTALURUS FURCATUS
ICGA	NORTHERN ORIOLE	ICTERUS GALBULA
ICME	BLACK BULLHEAD	ICTALURUS MELAS
ICNA	YELLOW BULLHEAD	ICTALURUS NATALIS
ICNE	BROWN BULLHEAD	ICTALURUS NEBULOSUS
ICPA	SCOTT'S ORIOLE	ICTERUS PARISORUM
ICPU	CHANNEL CATFISH	ICTALURUS PUNCTATUS
ICVI	YELLOW-BREASTED CHAT	ICTERIA VIRENS
INERSH	SHELTON PINE ELFIN	INCISALIA ERYPHON SHELTONENSIS
INMOMO	MOSS ELFIN	INCISALIA MOSSII MOSSII
INPO	HOARY ELFIN	INCISALIA POLIA OBSCURA
IXNA	VARIED THRUSH	IXOREUS NAEVIUS
JUHY	DARK-EYED JUNCO	JUNCO HYEMALIS
KOBR	PYGMY SPERM WHALE	KOGIA BREVICEPS
LAAR	HERRING GULL	LARUS ARGENTATUS
LAAT	LAUGHING GULL	LARUS ATRICILLA
LAAY	RIVER LAMPREY	LAMPETRA AYRESI
LABO	RED BAT	LASIURUS BOREALIS
LACAL	CALIFORNIA GULL	LARUS CALIFORNICUS
LACI	HOARY BAT	LASIURUS CINEREUS
LACU	SAGEBRUSH VOLE	LAGURUS CURTATUS
LADE	RING-BILLED GULL	LARUS DELAWARENSIS
LAEX	NORTHERN SHRIKE	LANIUS EXCUBITOR
LAGL	GLAUCOUS-WINGED GULL	LARUS GLAUCESCENS
LAHE	HEERMANN'S GULL	LARUS HEERMANNI
LAHY	GLAUCOUS GULL	LARUS HYPERBOREUS
LALE	WHITE-TAILED PTARMIGAN	LAGOPUS LEUCURUS
LALU	LOGGERHEAD SHRIKE	LANIUS LUDOVICIANUS
LAMI	LITTLE GULL	LARUS MINUTUS

EOCODE	COMMON NAME	SCIENTIFIC NAME
LANO	SILVER-HAIRED BAT	LASIONYCTERIS NOCTIVAGANS
LAOB	PACIFIC WHITE-SIDED DOLPHIN	LAGENORHYNCHUS OBLIQUIDENS
LAOC	WESTERN GULL	LARUS OCCIDENTALIS
LAPH	BONAPARTES GULL	LARUS PHILADELPHIA
LAPI	FRANKLIN'S GULL	LARUS PIPIXCAN
LARCAN	MEW GULL	LARUS CANUS
LARI	WESTERN BROOK LAMPREY	LAMPETRA RICHARDSONI
LATH	THAYER'S GULL	LARUS THAYERI
LAZO	CALIFORNIA MOUNTAIN KINGSNAKE	LAMPROPELTIS ZONATA
LEAM	SNOWSHOE HARE	LEPUS AMERICANUS
LEAR	PACIFIC STAGHORN SCULPIN	LEPTOCOTTUS ARMATUS
LECA	BLACK-TAILED JACK RABBIT	LEPUS CALIFORNICUS
LECY	GREEN SUNFISH	LEPOMIS CYANELLUS
LEGI	PUMPKINSEED	LEPOMIS GIBBOSUS
LEGU	WARMOUTH	LEPOMIS GULOSUS
LEMA	BLUEGILL	LEPOMIS MACROCHIRUS
LEOL	OLIVE RIDLEY SEA TURTLE	LEPIDOCHELYS OLIVACEA
LETE	GRAY-CROWNED ROSY FINCH	LEUCOSTICTE TEPHROCOTIS
LETO	WHITE-TAILED JACK RABBIT	LEPUS TOWNSENDII
LEUAR	ROSY FINCH	LEUCOSTICTE ARCTOA
LIAR	VICEROY	LIMENITIS ARCHIPPUS LAHONTANI
LIBO	NORTHERN RIGHT-WHALE DOLPHIN	LISSODELPHIS BOREALIS
LICO	GIANT COLUMBIA SPIRE SNAIL	FLUMINICOLA COLUMBIANA
LIFE	MARBLED GODWIT	LIMOSA FEDOA
LIGR	SHORT-BILLED DOWITCHER	LIMNODROMUS GRISEUS
LIHA	HUDSONIAN GODWIT	LIMOSA HAEMASTICTA
LILA	BAR-TAILED GODWIT	LIMOSA LAPPONICA
LISC	LONG-BILLED DOWITCHER	LIMNODROMUS SCOLOPACEUS
LOCUC	HOODED MERGANSER	LOPHODYTES CUCULLATUS
LOLE	WHITE-WINGED CROSSBILL	LOXIA LEUCOPTERA
LOLO	BURBOT	LOTA LOTA
LOXCU	RED CROSSBILL	LOXIA CURVIROSTRA
LUCA	RIVER OTTER	LUTRA CANADENSIS
LYCA	LYNX	LYNX CANADENSIS
LYCU	LUSTROUS COPPER	LYCAENA CUPREA HENRYAE
LYED	EDITH'S COPPER	LYCAENA EDITHA EDITHA
LYHE	PURPLISH COPPER	LYCAENA HELLOIDES
LYMACH	MAKAH COPPER(QUEEN CHARLOTTE COPPER)	LYCAENA MARIPOSA CHARLOTTENSIS
LYRU	BOBCAT	LYNX RUFUS
LYRUPE	RUDDY COPPER	LYCAENA RUBIDA PERKINSORUM
MAAM	MARTEN	MARTES AMERICANA
MACA	HOARY MARMOT	MARMOTA CALIGATA
MAFL	YELLOW-BELLIED MARMOT	MARMOTA FLAVIVENTRIS
MAOL	OLYMPIC MARMOT	MARMOTA OLYMPUS
MAPE	FISHER	MARTES PENNANTI
MATA	STRIPED WHIPSNAKE	MASTICOPHIS TAENIATUS
MECA	MOORE'S BEAKED WHALE	MESOPLODON CARLHUBBSI
MEFO	ACORN WOODPECKER	MELANERPES FORMICIVORUS
MEFU	WHITE-WINGED SCOTER	MELANITTA FUSCA
MEGA	WILD TURKEY	MELEAGRIS GALLOPAVO
MEGAIN	RIO GRANDE WILD TURKEY	MELEAGRIS GALLOPAVO INTERMEDIA
MEGAME	MERRIAM'S WILD TURKEY	MELEAGRIS GALLOPAVO MERRIAMI
MEGASI	EASTERN WILD TURKEY	MELEAGRIS GALLOPAVO SILVESTRIS

EOCODE	COMMON NAME	SCIENTIFIC NAME
MEGE	SWAMP SPARROW	MELOSPIZA GEORGIANA
MELE	LEWIS' WOODPECKER	MELANERPES LEWIS
MELI	LINCOLN'S SPARROW	MELOSPIZA LINCOLNII
MELME	SONG SPARROW	MELOSPIZA MELODIA
MEMEP	STRIPED SKUNK	MEPHITIS MEPHITIS
MENI	BLACK SCOTER	MELANITTA NIGRA
MENO	HUMP-BACKED WHALE	MEGAPTERA NOVAEANGLIAE
MEPE	SURF SCOTER	MELANITTA PERSPICILLATA
MERME	COMMON MERGANSER	MERGUS MERGANSER
MESE	RED-BREASTED MERGANSER	MERGUS SERRATOR
MEST	BERING SEA BEAKED WHALE	MESOPLODON STEJNEGERI
MIAN	NORTHERN ELEPHANT SEAL	MIROUNGA ANGUSTIROSTRIS
MIBA	BASIN HAIRSTREAK	MITOURA BARRYI
MICA	GRAY-TAILED VOLE	MICROTUS CANICAUDUS
MIDO	SMALLMOUTH BASS	MICROPTERUS DOLOMIEUI
MIJO	JOHNSON'S (MISTLETOE) HAIRSTREAK	MITOURA JOHNSONI
MILO	LONG-TAILED VOLE	MICROTUS LONGICAUDUS
MIMO	MONTANE VOLE	MICROTUS MONTANUS
MIOR	CREEPING VOLE	MICROTUS OREGONI
MIPE	MEADOW VOLE	MICROTUS PENNSYLVANICUS
MIPEK	KINCAID'S MEADOW VOLE	MICROTUS PENNSYLVANICUS KINKAIDI
MIPO	NORTHERN MOCKINGBIRD	MIMUS POLYGLOTTOS
MIRI	WATER VOLE	MICROTUS RICHARDSONI
MIRORO	ARBORVITAE HAIRSTREAK	MITOURA ROSNERI ROSNERI
MISA	LARGEMOUTH BASS	MICROPTERUS SALMOIDES
MISI	JUNIPER HAIRSTREAK	MITOURA SIVA SSP.
MISP	THICKET HAIRSTREAK	MITOURA SPINETORUM SPINETORUM
MITO	TOWNSEND'S VOLE	MICROTUS TOWNSENDII
MITOPU	SHAW ISLAND TOWNSEND'S VOLE	MICROTUS TOWNSENDII PUGETI
MNVA	BLACK-AND-WHITE WARBLER	MNIOTILTA VARIA
MOAT	BROWN-HEADED COWBIRD	MOLOTHRUS ATER
MOSA	STRIPED BASS	MORONE SAXATILIS
MUER	ERMINE	MUSTELA ERMINEA
MUFR	LONG-TAILED WEASEL	MUSTELA FRENATA
MUMU	HOUSE MOUSE	MUS MUSCULUS
MUVI	MINK	MUSTELA VISON
MYCA	PEAMOUTH	MYLOCHEILUS CAURINUS
MYCI	ASH-THROATED FLYCATCHER	MYIARCHUS CINERASCENS
MYCO	NUTRIA	MYOCASTOR COYPUS
MYEV	LONG-EARED MYOTIS	MYOTIS EVOTIS
MYKE	KEEN'S MYOTIS	MYOTIS KEENII
MYLE	SMALL-FOOTED MYOTIS	MYOTIS LEIBII
MYLU	LITTLE BROWN MYOTIS	MYOTIS LUCIFUGUS
MYOCA	CALIFORNIA MYOTIS	MYOTIS CALIFORNICUS
MYTH	FRINGED MYOTIS	MYOTIS THYSANODES
MYTO	TOWNSEND'S SOLITAIRE	MYADESTES TOWNSENDI
MYVO	LONG-LEGGED MYOTIS	MYOTIS VOLANS
MYYU	YUMA MYOTIS	MYOTIS YUMANENSIS
NECI	BUSHY-TAILED WOODRAT	NEOTOMA CINEREA
NEFU	DUSKY-FOOTED WOODRAT	NEOTOMA FUSCIPES
NEGI	SHREW-MOLE	NEUROTRICHUS GIBBSII
NOGY	TADPOLE MADTOM	NOTURUS GYRINUS
NOHU	OLYMPIC MUDMINNOW	NOVUMBRA HUBBSI

EOCODE	COMMON NAME	SCIENTIFIC NAME
NUAM	LONG-BILLED CURLEW	NUMENIUS AMERICANUS
NUCO	CLARK'S NUTCRACKER	NUCIFRAGA COLUMBIANA
NUPH	WHIMBREL	NUMENIUS PHAEOPUS
NYNY	BLACK-CROWNED NIGHT-HERON	NYCTICORAX NYCTICORAX
NYSC	SNOWY OWL	NYCTEA SCANDIACA
NYVA	COMPTON TORTOISESHELL	NYMPHALIS VAU-ALBUM WATSONI
OAGA	GARITA SKIPPERLING	OARISMA GARITA
OCFU	FORK-TAILED STORM-PETREL	OCEANODROMA FURCATA
OCLE	LEACH'S STORM-PETREL	OCEANODROMA LEUCORHOA
OCPR	PIKA	OCHOTONA PRINCEPS
OCSYBO	BONNEVILLE SKIPPER	OCHLODES SYLVANOIDES BONNEVILLA
OCSYOR	COASTAL WOODLAND SKIPPER	OCHLODES SYLVANOIDES ORECOASTA
OCYU	YUMA SKIPPER	OCHLODES YUMA
ODHE	MULE AND BLACK-TAILED DEER	ODOCOILEUS HEMIONUS
ODHEC	COLUMBIAN BLACK-TAILED DEER	ODOCOILEUS HEMIONUS COLUMBIANUS
ODHEH	MULE DEER	ODOCOILEUS HEMIONUS HEMIONUS
ODVI	WHITE-TAILED DEER	ODOCOILEUS VIRGINIANUS
ODVIL	COLUMBIAN WHITE-TAILED DEER	ODOCOILEUS VIRGINIANUS LEUCURUS
ODVIO	NORTHWEST WHITE-TAILED DEER	ODOCOILEUS VIRGINIANUS OCHROURUS
OECHC	CHRYXUS ARCTIC	OENEIS CHRYXUS CHRYXUS
OECHV	VALERATA ARCTIC	OENEIS CHRYXUS VALERATA
OEME	MELISSA ARCTIC	OENEIS MELISSA BEANII
OENEGI	GREAT GRAYLING	OENEIS NEVADENSIS GIGAS
ONCL	CUTTHROAT	ONCORHYNCHUS CLARKI
ONCLCL	COASTAL CUTTHROAT	ONCORHYNCHUS CLARKI CLARKI
ONCLLE	WESTSLOPE CUTTHROAT	ONCORHYNCHUS CLARKI LEWISI
ONGO	PINK SALMON	ONCORHYNCHUS GORBUSCHA
ONKE	CHUM SALMON	ONCORHYNCHUS KETA
ONKI	COHO SALMON	ONCORHYNCHUS KISUTCH
ONLE	NORTHERN GRASSHOPPER MOUSE	ONYCHOMYS LEUCOGASTER
ONLEW	WESTSLOPE CUTTHROAT	ONCORHYNCHUS LEWISI
ONMY	RAINBOW TROUT	ONCORHYNCHUS MYKISS
ONNE	SOCKEYE SALMON	ONCORHYNCHUS NERKA
ONNEANA	SOCKEYE SALMON (ANADROMOUS)	ONCORHYNCHUS NERKA
ONNELAN	KOKANEE (LANDLOCKED SOCKEYE)	ONCORHYNCHUS NERKA
ONNESNA	SOCKEYE SALMON (SNAKE R.)	ONCORHYNCHUS NERKA
ONTS	CHINOOK SALMON	ONCORHYNCHUS TSHAWYTSCHA
ONTSSNF	CHINOOK SALMON(SNAKE R. FALL)	ONCORHYNCHUS TSHAWYTSCHA
ONTSSNS	CHINOOK SALMON(SNAKE R. SP/SU)	ONCORHYNCHUS TSHAWYTSCHA
ONZI	MUSKRAT	ONDATRA ZIBETHICUS
OPTO	MACGILLIVRAY'S WARBLER	OPORORNIS TOLMIEI
ORAM	MOUNTAIN GOAT	OREAMNOS AMERICANUS
ORCU	EUROPEAN RABBIT	ORYCTOLAGUS CUNICULUS
ORMO	SAGE THRASHER	OREOSCOPTES MONTANUS
OROR	KILLER WHALE	ORCINUS ORCA
ORPI	MOUNTAIN QUAIL	OREORTYX PICTUS
OTFL	FLAMMULATED OWL	OTUS FLAMMEOLUS
OTKE	WESTERN SCREECH-OWL	OTUS KENNICOTTII
OVCA	BIGHORN SHEEP	OVIS CANADENSIS
OVCACAL	CALIFORNIA BIGHORN SHEEP	OVIS CANADENSIS CALIFORNIANA
OVCACAN	ROCKY MOUNTAIN BIGHORN SHEEP	OVIS CANADENSIS CANADENSIS
OXJA	RUDDY DUCK	OXYURA JAMAICENSIS
PAAM	NORTHERN PARULA	PARULA AMERICANA

EOCODE	COMMON NAME	SCIENTIFIC NAME
PAAMO	LAZULI BUNTING	PASSERINA AMOENA
PAAT	BLACK-CAPPED CHICKADEE	PARUS ATRICAPILLUS
PACL	SHEPARD'S PARNASSIAN	PARNASSIUS CLODIUS SHEPARDI
PACY	INDIGO BUNTING	PASSERINA CYANEA
PADO	HOUSE SPARROW	PASSER DOMESTICUS
PAEB	IVORY GULL	PAGOPHILA EBURNEA
PAGA	MOUNTAIN CHICKADEE	PARUS GAMBELI
PAGL	EASTERN TIGER SWALLOWTAIL	PAPILIO GLAUCUS CANADENSIS
PAHA	OSPREY	PANDION HALIAETUS
PAHU	BOREAL CHICKADEE	PARUS HUDSONICUS
PAIL	FOX SPARROW	PASSERELLA ILIACA
PARU	CHESTNUT-BACKED CHICKADEE	PARUS RUFESCENS
PASA	SAVANNAH SPARROW	PASSERCULUS SANDWICHENSIS
PECA	GRAY JAY	PERISOREUS CANADENSIS
PEER	AMERICAN WHITE PELICAN	PELECANUS ERYTHRORHYNCHOS
PEFL	YELLOW PERCH	PERCA FLAVESCENS
PEMA	DEER MOUSE	PEROMYSCUS MANICULATUS
PEOC	BROWN PELICAN	PELECANUS OCCIDENTALIS
PEOR	LONG-TAILED DEER MOUSE	PEROMYSCUS OREAS
PEPA	GREAT BASIN POCKET MOUSE	PEROGNATHUS PARVUS
PEPE	GRAY PARTRIDGE	PERDIX PERDIX
PETR	SAND ROLLER	PERCOPSIS TRANSMONTANA
PHAE	RED-BILLED TROPICBIRD	PHAETHON AETHEREUS
PHALFU	RED PHALAROPE	PHALAROPUS FULICARIA
PHAU	DOUBLE-CRESTED CORMORANT	PHALACROCORAX AURITUS
PHCO	RING-NECKED PHEASANT	PHASIANUS COLCHICUS
PHDA	DALL'S PORPOISE	PHOCOENOIDES DALLI
PHDO	SHORT-HORNED LIZARD	PHRYNOSOMA DOUGLASSI
PHIN	HEATHER VOLE	PHENACOMYS INTERMEDIUS
PHLO	RED-NECKED PHALAROPE	PHALAROPUS LOBATUS
PHLU	ROSE-BREASTED GROSBEAK	PHEUCTICUS LUDOVICIANUS
PHMA	SPERM WHALE	PHYSETER MACROCEPHALUS
PHME	BLACK-HEADED GROSBEAK	PHEUCTICUS MELANOCEPHALUS
PHNU	COMMON POORWILL	PHALAENOPTILUS NUTTALLII
PHPA	PALE CRESCENT	PHYCIODES PALLIDUS BARNESI
PHPAS	PASCO PEARL CRESCENT	PHYCIODES "THAROS" PASCOENSIS
PHPEL	PELAGIC CORMORANT	PHALACROCORAX PELAGICUS
PHPEN	BRANDT'S CORMORANT	PHALACROCORAX PENICILLATUS
PHPH	PACIFIC HARBOR PORPOISE	PHOCOENA PHOCOENA
PHPU	RUFF	PHILOMACHUS PUGNAX
PHTR	WILSON'S PHALAROPE	PHALAROPUS TRICOLOR
PHVI	HARBOR SEAL	PHOCA VITULINA
PIAL	WHITE-HEADED WOODPECKER	PICOIDES ALBOLARVATUS
PIAR	BLACK-BACKED WOODPECKER	PICOIDES ARCTICUS
PICA	GOPHER SNAKE	PITUOPHIS CATENIFER
PICACA	PACIFIC GOPHER SNAKE	PITUOPHIS CATENIFER CATENIFER
PICH	GREEN-TAILED TOWHEE	PIPILO CHLORURUS
PIEN	PINE GROSBEAK	PINICOLA ENUCLEATOR
PIER	RUFOUS-SIDED TOWHEE	PIPILO ERYTHROPHTHALMUS
PIHE	WESTERN PIPISTRELLE	PIPISTRELLUS HESPERUS
PILU	WESTERN TANAGER	PIRANGA LUDOVICIANA
PIME	GOPHER SNAKE	PITUOPHIS CATENIFER
PIMEC	PACIFIC GOPHER SNAKE	PITUOPHIS MALANOLENUCUS CATENIFER

EOCODE	COMMON NAME	SCIENTIFIC NAME
PIPI	BLACK-BILLED MAGPIE	PICA PICA
PIPR	CHECKERED WHITE	PIERIS (PONTIA) PROTODICE
PIPU	DOWNY WOODPECKER	PICOIDES PUBESCENS
PITR	THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS
PIVI	HAIRY WOODPECKER	PICOIDES VILLOSUS
PLAQ	HIGH MOUNTAIN BLUE	AGRIADES GLANDON MEGALO
PLCH	WHITE-FACED IBIS	PLEGADIS CHIHI
PLDO	AMERICAN GOLDEN-PLOVER	PLUVIALIS DOMINICA
PLDU	DUNN'S SALAMANDER	PLETHODON DUNNI
PLFU	PACIFIC GOLDEN-PLOVER	PLUVIALIS FULVA
PLHY	MCKAY'S BUNTING	PLECTROPHENAX HYPERBOREUS
PLICER	PUGET BLUE	PLEBEJUS ICARIOIDES ERYMUS
PLLA	LARCH MOUNTAIN SALAMANDER	PLETHODON LARSELLI
PLNI	SNOW BUNTING	PLECTROPHENAX NIVALIS
PLSQ	BLACK-BELLIED PLOVER	PLUVIALIS SQUATAROLA
PLST	STARRY FLOUNDER	PLATICHTHYS STELLATUS
PLTO	TOWNSEND'S BIG-EARED BAT	PLECOTUS TOWNSENDII
PLTOP	TOWNSEND'S BIG-EARED BAT	PLECOTUS TOWNSENDII PALLISCENS
PLTOT	TOWNSEND'S BIG-EARED BAT	PLECOTUS TOWNSENDII TOWNSENDII
PLVA	VAN DYKE'S SALAMANDER	PLETHODON VANDYKEI
PLVE	WESTERN RED-BACKED SALAMANDER	PLETHODON VEHICULUM
POAN	WHITE CRAPPIE	POMOXIS ANNULARIS
POAU	HORNED GREBE	PODICEPS AURITUS
POCO	YELLOWPATCH SKIPPER	POLITES CORAS
PODNI	EARED GREBE	PODICEPS NIGRICOLLIS
POGR	RED-NECKED GREBE	PODICEPS GRISEGENA
POGRA	OREGON VESPER SPARROW	POOECETES GRAMINEUS AFFINIS
POLCA	BLUE-GRAY GNATCATCHER	POLIOPTILA CAERULEA
POMA	MARDON SKIPPER	POLITES MARDON
POMY	LONG-DASH SKIPPER	POLITES MYSTIC SSP.
PONI	BLACK CRAPPIE	POMOXIS NIGROMACULATUS
POOGR	VESPER SPARROW	POOECETES GRAMINEUS
POOR	OREAS ANGLEWING	POLYGONIA OREAS
POPO	PIED-BILLED GREBE	PODILYMBUS PODICEPS
PORCA	SORA	PORZANA CAROLINA
POSO	SONORA SKIPPER	POLITES SONORA SONORA
POSOS	SONORA SKIPPER	POLITES SONORA SIRIS
POTH	TAWNY-EDGED SKIPPER	POLITES THEMISTOCLES
PRCI	PROTHONOTARY WARBLER	PROTONOTARIA CITREA
PRCO	PYGMY WHITEFISH	PROSOPIUM COULTERI
PRLO	RACCOON	PROCYON LOTOR
PRSU	PURPLE MARTIN	PROGNE SUBIS
PRWI	MOUNTAIN WHITEFISH	PROSOPIUM WILLIAMSONI
PSCR	FALSE KILLER WHALE	PSEUDORCA CRASSIDENS
PSMI	BUSHTIT	PSALTRIPARUS MINIMUS
PSSC	POND SLIDER	PSEUDEMYS SCRIPTA
PTAL	CASSIN'S AUKLET	PTYCHORAMPHUS ALEUTICUS
PTIN	MOTTLED PETREL	PTERODROMA INEXPECTATA
PTOR	NORTHERN SQUAWFISH	PTYCHOCHEILUS OREGONENSIS
PUBU	BULLER'S SHEARWATER	PUFFINUS BULLERI
PUCA	FLESH-FOOTED SHEARWATER	PUFFINUS CARNEIPES
PUCR	PINK-FOOTED SHEARWATER	PUFFINUS CREATOPUS
PUGR	SOOTY SHEARWATER	PUFFINUS GRISEUS

EOCODE	COMMON NAME	SCIENTIFIC NAME
PUTE	SHORT-TAILED SHEARWATER	PUFFINUS TENUIROSTRIS
PYCE	ALPINE CHECKERED SKIPPER	PYRGUS CENTAUREAE LOKI
PYOL	FLATHEAD CATFISH	PYLODICTIS OLIVARIS
QUQU	COMMON GRACKLE	QUISCALUS QUISCULA
RAAU	RED-LEGGED FROG	RANA AURORA
RACAT	BULLFROG	RANA CATESBEIANA
RACL	GREEN FROG	RANA CLAMITANS
RALI	VIRGINIA RAIL	RALLUS LIMICOLA
RALU	COLUMBIA SPOTTED FROG	RANA LUTEIVENTRIS
RANCA	CASCADES FROG	RANA CASCADAE
RANO	NORWAY RAT	RATTUS NORVEGICUS
RAPI	NORTHERN LEOPARD FROG	RANA PIPIENS
RAPR	OREGON SPOTTED FROG	RANA PRETIOSA
RARA	BLACK RAT	RATTUS RATTUS
RASY	WOOD FROG	RANA SYLVATICA
RATA	MOUNTAIN CARIBOU	RANGIFER TARANDUS
REAM	AMERICAN AVOCET	RECURVIROSTRA AMERICANA
RECA	RUBY-CROWNED KINGLET	REGULUS CALENDULA
REME	WESTERN HARVEST MOUSE	REITHRODONTOMYS MEGALOTIS
RESA	GOLDEN-CROWNED KINGLET	REGULUS SATRAPA
RHCA	LONGNOSE DACE	RHINICHTHYS CATARACTAE
RHCAS	CASCADE TORRENT SALAMANDER	RHYACOTRITON CASCADAE
RHCASS	NOOKY DACE	RHINICHTHYS CATARACTAE SSP.
RHFA	LEOPARD DACE	RHINICHTHYS FALCATUS
RHKE	COLUMBIA TORRENT SALAMANDER	RHYACOTRITON KEZERI
RHOL	OLYMPIC TORRENT SALAMANDER	RHYACOTRITON OLYMPICUS
RHOS	SPECKLED DACE	RHINICHTHYS OSCULUS
RIBA	REDSIDE SHINER	RICHARDSONIUS BALTEATUS
RIBR	RED-LEGGED KITTIWAKE	RISSA BREVIROSTRIS
RIRI	BANK SWALLOW	RIPARIA RIPARIA
RITR	BLACK-LEGGED KITTIWAKE	RISSA TRIDACTYLA
SAAG	GOLDEN TROUT	SALMO AGUABONITA
SACO	BULL TROUT	SALVELINUS CONFLUENTUS
SAFO	BROOK TROUT	SALVELINUS FONTINALIS
SAMA	DOLLY VARDEN	SALVELINUS MALMA
SANA	LAKE TROUT	SALVELINUS NAMAYCUSH
SAOB	ROCK WREN	SALPINCTES OBSOLETUS
SASA	ATLANTIC SALMON	SALMO SALAR
SASY	SYLVAN HAIRSTREAK	SATYRIUM SYLVINUM SYLVINUM
SASYL	SYLVAN HAIRSTREAK	SATYRIUM SYLVINUM PUTNAMI
SATR	BROWN TROUT	SALMO TRUTTA
SAYSA	SAY'S PHOEBE	SAYORNIS SAYA
SCCA	GRAY SQUIRREL	SCIURUS CAROLINENSIS
SCGRA	SAGEBRUSH LIZARD	SCELOPORUS GRACIOSUS
SCGRI	WESTERN GRAY SQUIRREL	SCIURUS GRISEUS
SCLA	BROAD-FOOTED MOLE	SCAPANUS LATIMANUS
SCNI	FOX SQUIRREL	SCIURUS NIGER
SCOC	WESTERN FENCE LIZARD	SCELOPORUS OCCIDENTALIS
SCOR	COAST MOLE	SCAPANUS ORARIUS
SCTO	TOWNSEND'S MOLE	SCAPANUS TOWNSENDII
SEAU	OVENBIRD	SEIURUS AUROCAPILLUS
SENO	NORTHERN WATERTHRUSH	SEIURUS NOVEBORACENSIS
SERU	AMERICAN REDSTART	SETOPHAGA RUTICILLA

EOCODE	COMMON NAME	SCIENTIFIC NAME
SERUF	RUFOUS HUMMINGBIRD	SELASPHORUS RUFUS
SESA	ALLEN'S HUMMINGBIRD	SELASPHORUS SASIN
SICAR	WHITE-BREASTED NUTHATCH	SITTA CAROLINENSIS
SICU	MOUNTAIN BLUEBIRD	SIALIA CURRUCOIDES
SIME	WESTERN BLUEBIRD	SIALIA MEXICANA
SIPY	PYGMY NUTHATCH	SITTA PYGMAEA
SITCA	RED-BREASTED NUTHATCH	SITTA CANADENSIS
SOBE	PACIFIC WATER SHREW	SOREX BENDIRII
SOCI	MASKED SHREW	SOREX CINEREUS
SOFE	FENDER'S SOLIPERLAN STONEFLY	SOLIPERLA FENDERI
SOHO	PYGMY SHREW	SOREX HOYI
SOME	MERRIAM'S SHREW	SOREX MERRIAMI
SOMO	DUSKY SHREW	SOREX MONTICOLUS
SOPAL	WATER SHREW	SOREX PALUSTRIS
SOPR	PREBLES SHREW	SOREX PREBLEI
SOTRO	TROWBRIDGE'S SHREW	SOREX TROWBRIDGII
SOTROD	DESTRUCTION ISLAND SHREW	SOREX TROWBRIDGII DESTRUCTIONI
SOVA	VAGRANT SHREW	SOREX VAGRANS
SPAR	AMERICAN TREE SPARROW	SPIZELLA ARBOREA
SPBEE	CALIFORNIA GROUND SQUIRREL	SPERMOPHILUS BEECHEYI
SPBR	BREWER'S SPARROW	SPIZELLA BREWERI
SPCO	COLUMBIAN GROUND SQUIRREL	SPERMOPHILUS COLUMBIANUS
SPEG	EGLEIS FRITILLARY	SPEYERIA EGLEIS OWENI
SPEGM	EGLEIS FRITILLARY	SPEYERIA EGLEIS MCDUNNOUGHI
SPGR	SPOTTED SKUNK	SPILOGALE GRACILIS
SPHTH	WILLIAMSON'S SAPSUCKER	SPHYRAPICUS THYROIDEUS
SPHYRH	HYDASPE FRITILLARY	SPEYERIA HYDASPE RHODOPE
SPIN	GREAT BASIN SPADEFOOT	SPEA INTERMONTANA
SPLA	GOLDEN-MANTLED GROUND SQUIRREL	SPERMOPHILUS LATERALIS
SPLE	PUGET SOUND SILVERSPOT	SPEYERIA CYBELE PUGETENSIS
SPNU	RED-NAPED SAPSUCKER	SPHYRAPICUS NUCHALIS
SPPA	CHIPPING SPARROW	SPIZELLA PASSERINA
SPPAL	CLAY-COLORED SPARROW	SPIZELLA PALLIDA
SPRU	RED-BREASTED SAPSUCKER	SPHYRAPICUS RUBER
SPSA	CASCADE GOLDEN-MANTLED GROUND SQUIRREL	SPERMOPHILUS SATURATUS
SPTH	LONGFIN SMELT	SPIRINCHUS THALEICHTHYS
SPTO	TOWNSEND'S GROUND SQUIRREL	SPERMOPHILUS TOWNSENDII
SPWA	WASHINGTON GROUND SQUIRREL	SPERMOPHILUS WASHINGTONI
SPZE	ZERENE FRITILLARY	SPEYERIA ZERENE
SPZEBR	VALLEY SILVERSPOT	SPEYERIA ZERENE BREMNERII
SPZEHI	OREGON SILVERSPOT	SPEYERIA ZERENE HIPPOLYTA
STAN	LEAST TERN	STERNA ANTILLARUM
STCA	CASPIAN TERN	STERNA CASPIA
STCO	STRIPED DOLPHIN	STENELLA COERULEOALBA
STELCA	CALLIOPE HUMMINGBIRD	STELLULA CALLIOPE
STFO	FORSTER'S TERN	STERNA FORSTERI
STHI	COMMON TERN	STERNA HIRUNDO
STLO	LONG-TAILED JAEGER	STERCORARIUS LONGICAUDUS
STNE	GREAT GRAY OWL	STRIX NEBULOSA
STOC	SPOTTED OWL	STRIX OCCIDENTALIS
STPA	PARASITIC JAEGER	STERCORARIUS PARASITICUS
STPAR	ARCTIC TERN	STERNA PARADISAEA
STPO	POMARINE JAEGER	STERCORARIUS POMARINUS

EOCODE	COMMON NAME	SCIENTIFIC NAME
STSE	NORTHERN ROUGH-WINGED SWALLOW	STELGIDOPTERYX SERRIPENNIS
STUNE	WESTERN MEADOWLARK	STURNELLA NEGLECTA
STVA	BARRED OWL	STRIX VARIA
STVI	WALLEYE	STIZOSTEDION VITREUM
STVU	EUROPEAN STARLING	STURNUS VULGARIS
SUNE	BLUE-FOOTED BOOBY	SULA NEBOUXII
SUUL	NORTHERN HAWK OWL	SURNIA ULULA
SYAN	ANCIENT MURRELET	SYNTHLIBORAMPHUS ANTIQUUS
SYBO	NORTHERN BOG LEMMING	SYNAPTOMYS BOREALIS
SYFL	EASTERN COTTONTAIL	SYLVILAGUS FLORIDANUS
SYHY	XANTUS' MURRELET	SYNTHLIBORAMPHUS HYPOLEUCUS
SYID	PYGMY RABBIT	BRACHYLAGUS IDAHOENSIS
SYNU	NUTTALL'S COTTONTAIL	SYLVILAGUS NUTTALLII
TAAM	YELLOW-PINE CHIPMUNK	TAMIAS AMOENUS
TABI	TREE SWALLOW	TACHYCINETA BICOLOR
TADO	DOUGLAS' SQUIRREL	TAMIASCIURUS DOUGLASII
TAGR	ROUGHSKIN NEWT	TARICHA GRANULOSA
TAHU	RED SQUIRREL	TAMIASCIURUS HUDSONICUS
TAMI	LEAST CHIPMUNK	TAMIAS MINIMUS
TARU	RED-TAILED CHIPMUNK	TAMIAS RUFICAUDUS
TATA	BADGER	TAXIDEA TAXUS
TATH	VIOLET-GREEN SWALLOW	TACHYCINETA THALASSINA
TATO	TOWNSEND'S CHIPMUNK	TAMIAS TOWNSENDII
THAR	ARCTIC GRAYLING	THYMALLUS ARCTICUS
THBE	BEWICK'S WREN	THRYOMANES BEWICKII
THEL	WESTERN TERRESTRIAL GARTER SNAKE	THAMNOPHIS ELEGANS
THMA	WESTERN POCKET GOPHER	THOMOMYS MAZAMA
THMAC	SHELTON POCKET GOPHER	THOMOMYS MAZAMA COUCHI
THMAG	ROY PRAIRIE POCKET GOPHER	THOMOMYS MAZAMA GLACIALIS
THMAL	CATHLAMET POCKET GOPHER	THOMOMYS MAZAMA LOUIEI
THMAME	OLYMPIC POCKET GOPHER	THOMOMYS MAZAMA MELANOPS
THMAT	TENINO POCKET GOPHER	THOMOMYS MAZAMA TUMULI
THMATA	TACOMA POCKET GOPHER	THOMOMYS MAZAMA TACOMENSIS
THOR	NORTHWESTERN GARTER SNAKE	THAMNOPHIS ORDINOIDES
THPA	EULACHON	THALEICTHYS PACIFICUS
THPY	NORTHERN CLOUDY WING	THORYBES PYLADES
THSI	COMMON GARTER SNAKE	THAMNOPHIS SIRTALIS
THTA	NORTHERN POCKET GOPHER	THOMOMYS TALPOIDES
THTAD	BRUSH PRAIRIE POCKET GOPHER	THOMOMYS TALPOIDES DOUGLASI
THTAL	WHITE SALMON POCKET GOPHER	THOMOMYS TALPOIDES LIMOSUS
TITI	TENCH	TINCA TINCA
TRAE	HOUSE WREN	TROGLODYTES AEDON
TRFL	LESSER YELLOWLEGS	TRINGA FLAVIPES
TRME	GREATER YELLOWLEGS	TRINGA MELANOLEUCA
TRSO	SOLITARY SANDPIPER	TRINGA SOLITARIA
TRSU	BUFF-BREASTED SANDPIPER	TRYNGITES SUBRUFICOLLIS
TRTR	WINTER WREN	TROGLODYTES TROGLODYTES
TUMI	AMERICAN ROBIN	TURDUS MIGRATORIUS
TYAL	BARN OWL	TYTO ALBA
TYME	TROPICAL KINGBIRD	TYRANNUS MELANCHOLICUS
TYPH	SHARP-TAILED GROUSE	TYMPANUCHUS PHASIANELLUS
TYTY	EASTERN KINGBIRD	TYRANNUS TYRANNUS
TYVE	WESTERN KINGBIRD	TYRANNUS VERTICALIS

EOCODE	COMMON NAME	SCIENTIFIC NAME
URAA	COMMON MURRE	URIA AALGE
URAM	BLACK BEAR	URSUS AMERICANUS
URAR	GRIZZLY BEAR	URSUS ARCTOS
URLO	THICK-BILLED MURRE	URIA LOMVIA
UTST	SIDE-BLOTCHED LIZARD	UTA STANSBURIANA
VECE	ORANGE-CROWNED WARBLER	VERMIVORA CELATA
VEPE	TENNESSEE WARBLER	VERMIVORA PEREGRINA
VERU	NASHVILLE WARBLER	VERMIVORA RUFICAPILLA
VIGI	WARBLING VIREO	VIREO GILVUS
VIHU	HUTTON'S VIREO	VIREO HUTTONI
VIOL	RED-EYED VIREO	VIREO OLIVACEUS
VISO	SOLITARY VIREO	VIREO SOLITARIUS
VUVU	RED FOX	VULPES VULPES
VUVUC	CASCADE RED FOX	VULPES VULPES CASCADENSIS
VUVUS	LOWLAND RED FOX	VULPES VULPES SUBSPP
WICI	HOODED WARBLER	WILSONIA CITRINA
WIPU	WILSON'S WARBLER	WILSONIA PUSILLA
XAXA	YELLOW-HEADED BLACKBIRD	XANTHOCEPHALUS XANTHOCEPHALUS
XESA	SABINE'S GULL	XEMA SABINI
ZACA	CALIFORNIA SEA LION	ZALOPHUS CALIFORNIANUS
ZAPR	WESTERN JUMPING MOUSE	ZAPUS PRINCEPS
ZATR	PACIFIC JUMPING MOUSE	ZAPUS TRINOTATUS
ZEAS	WHITE-WINGED DOVE	ZENAIDA ASIATICA
ZEMA	MOURNING DOVE	ZENAIDA MACROURA
ZICA	GOOSE-BEAKED WHALE	ZIPHIUS CAVIROSTRIS
ZOAL	WHITE-THROATED SPARROW	ZONOTRICHIA ALBICOLLIS
ZOAT	GOLDEN-CROWNED SPARROW	ZONOTRICHIA ATRICAPILLA
ZOLE	WHITE-CROWNED SPARROW	ZONOTRICHIA LEUCOPHRYS
ZOQU	HARRIS' SPARROW	ZONOTRICHIA QUERULA
ZZZZ	MASKED SENSITIVE SPECIES	

Appendix H. Land Use Codes

Land Cover Classification System
Source: Wildlife Area Inventory

1 Urban or built-up land	11 industrial, commercial	
	12 residential	
	13 transportation	
	14 right-of-ways (highways, power lines)	
	15 campgrounds	
	16 other urban or built-up land	
2 Agricultural land	21 croplands, pasture	
	22 orchards, nurseries	
	23 other agricultural lands	
3 Rangeland	31 herbaceous moist	
	32 herbaceous medium	
	33 herbaceous dry	
	34 shrub, brush moist	341 tall, closed
		342 short, closed
		343 tall, open
		344 short, open
	35 shrub, brush medium	351 tall, closed
		352 short, closed
		353 tall, open
		354 short, open
	36 shrub, brush dry	361 tall, closed
		362 short, closed
		363 tall, open
		364 short, open
	37 mixed moist	
	38 mixed medium	
	39 mixed dry	
4 Forest land	41 conifer, closed canopy (> 70%)	411 old growth
		412 saw timber, large
		413 saw timber, small
		414 pole
		415 lodgepole
		416 high altitude

Appendix H. Land Use Codes (continued)

	42 conifer, open canopy (40-70%)	421 old growth
		422 lodgepole
		423 lodgepole, regenerating
		424 shrub, under story
		425 herbaceous, under story
		426 regenerating
		427 high altitude
	43 conifer woodland	431 old growth
		432 lodgepole
		433 lodgepole, regenerating
		434 shrub under story
		435 herbaceous under story
		436 regenerating
		437 high altitude
	44 broadleaf, closed	
	45 broadleaf, open	451 shrub under story
		452 herbaceous under story
	46 mixed, closed	
	47 mixed, open	471 Shrub under story
		472 herbaceous under story
		473 regenerating
	48 clear cut	481 barren
		482 grass/forb
		483 seedling/shrub
5 Riparian land	51 conifer, closed	511 old growth
	52 conifer, open	521 shrub under story
		522 herbaceous under story
		523 regenerating
	53 broadleaf	
	54 mixed trees	
	55 shrub	
	56 herbaceous	
6 Wetlands	61 conifer forest (swamp)	
	62 broadleaf forest (swamp)	
	63 mixed forest (swamp)	
	64 shrub (swamp)	
	65 emergent vegetation (marsh)	
	66 moss (bog)	
	67 aquatic bed (pond)	
	68 estuarine marsh	

Appendix H. Land Use Codes (continued)

7 Aquatic types	71 open water (lake, reservoir, pond, ocean)	
	72 rivers	721 mainstream, grad < 1%
		722 mainstream, grad 1-4%
		723 mainstream, grad > 4%
		724 tributary, grad < 1%
		725 tributary, grad 1-4%
		726 tributary, grad 4-6%
		727 tributary, grad 6-12%
		728 tributary, grad > 12%
		729 gravel bars, unvegetated flood plains
8 Barren and tundra land	81 rock	
	82 talus	
	83 sand	
	84 strip mines, quarries	
	85 bare ground	851 reservoir drawdown
		852 other bare ground
	86 shrub, brush	
	87 herbaceous	
9 Perennial snow or ice	91 snowfields	
	92 glaciers	

Appendix I. Ownership Codes

BIANPSF	US Bureau of Indian Affairs, US National Park Service
BIAPVTFP	US Bureau of Indian Affairs, private
BIAPVTFS	US Bureau of Indian Affairs, private, US Forest Service
BLMPINFP	US Bureau of Land Management, private individual
BLMPVTFP	US Bureau of Land Management, private
BLMPVTFPS	US Bureau of Land Management, private, with some state land
DNRBLMSFP	WA Department of Natural Resources, US Bureau of Land Management
DNRFS SF	WA Department of Natural Resources, US Forest Service
DNRPINSP	WA Department of Natural Resources, private individual
DNRPVTSP	WA Department of Natural Resources, private
DNRPVTSPF	WA Department of Natural Resources, private, with some federal land
DNRWDWSPF	WA Department of Natural Resources, WA Department of Fish and Wildlife, with some federal land
ERDDNRFS	US Energy Resource Development, WA Department of Natural Resources
ERDFWSF	US Energy Resource Development, US Fish and Wildlife Service
ERDWDWFS	US Energy Resource Development, WA Department of Fish and Wildlife
FS BIAF	US Forest Service, US Bureau of Indian Affairs
FS DNRFS	US Forest Service, WA Department of Natural Resources
FS DNRFSP	US Forest Service, WA Department of Natural Resources, private
FS DNRPVT	US Forest Service, WA Department of Natural Resources, private
FS PVTFP	US Forest Service, private
FS PVTFPS	US Forest Service, private, with some state land
FWSPVTFP	US Fish and Wildlife Service, private
FWSWDWFS	US Fish and Wildlife Service, WA Department of Fish and Wildlife
LOCCTY	Local county government
LOCMUN	Local city government
LOCPVT	Local government, private
NPSBIAF	US National Park Service, US Bureau of Indian Affairs
NPSFS F	US National Park Service, US Forest Service
NPSFWSF	US National Park Service, US Fish and Wildlife Service
NPSPVTFPS	US National Park Service, private, with some state land
PINBLMPF	Private individual, US Bureau of Land Management
PVTBIAPF	Private, US Bureau of Indian Affairs
PVTBLMPF	Private, US Bureau of Land Management (or PVTBLMFP)
PVTDNRPS	Private, WA Department of Natural Resources (or PVTDNRSP)
PVTDODPF	Private, US Department of Defense
PVTFS PF	Private, US Forest Service
PVTPIN	Private individual
PVTPVT	Private corporation
PVTTNC	Private, The Nature Conservancy
PVTUAA	Private, University
PVTUUU	Private unknown

Appendix I. Ownership Codes (continued)

SPRDNRS	WA Department of State Parks and Recreation, WA Department of Natural Resources
SPRPVTSP	WA Department of State Parks and Recreation, private
ST	Washington State
ST DNR	WA Department of Natural Resources
ST SPR	WA Department of State Parks and Recreation
ST UAA	WA State university system
ST UOW	University of Washington
ST WFW	WA Department of Fish and Wildlife (old WDF)
ST WDT	WA Department of Transportation
TNCPVT	The Nature Conservancy, private
USABIA	US Bureau of Indian Affairs
USABLM	US Bureau of Land Management
USABOR	US Bureau of Reclamation
USABPA	Bonneville Power Administration
USACOE	US Army Corps of Engineers
USADOA	US Department of the Army
USADOD	US Department of Defense
USAERD	US Department of Energy Resource Development
USAFHA	US Farmers Home Administration
USAFS	US Forest Service
USAFWS	US Fish and Wildlife Service
USAGS	US Geological Survey
USANPS	US National Park Service
USAPVTMI	Federal, private ownership
USAUUU	Federal land, agency ownership unknown
UUUUU	Unknown (same as a blank)
WDWERDSF	WA Department of Fish and Wildlife, US Energy Resource Development
WDWPVTSP	Wa Department of Fish and Wildlife, private

Appendix J. Marbled Murrelet status and obscode values

LOGIC FOR ASSIGNING MARBLED MURRELET WDFWSTAT CODE VALUES:
(for clarification of codes please contact the Marbled Murrelet Database manager)

1) N = nest (assigned at time of data entry)

2) DG = dead young, flightless or downy (assigned at time of data entry)
EG = eggshell fragments on ground (assigned at time of data entry)

3) Circling <= 1 canopy
a) Detection Type is B or S, Behavior is B, Bird Height is <= 1, blank or "U" for unknown

Flythrough <= 1 canopy
a) Detection Type is B or S, Behavior is T, Bird Height is <= 1, blank or "U" for unknown

Circling > 1 and <= 2.00 canopies
a) Detection Type is B or S, Behavior is C, Bird Height is > 1 and <= 2.00

Stationary
a) Detection Type is H, Behavior is S, Vocalization is >= 3, Bird Height is any numerical value, blank, or "U" unknown, Notes or Closest Dist. is <= 100m or 328 feet (Closest Dist. was not captured in the 1995 database, therefore, it is necessary to manually review any surveys generating Behavior = S)

Land
a) Detection Type is B or S, Behavior is L
(Notes should reenforce Behavior or be reverified with the observer)

Unreported Behavior (subcanopy)
a) Detection Type is B or S, Behavior is blank or "U" for unknown, Bird Height is <= 1 (check notes for Behaviors)

4) Circling > 2.00 canopies
a) Detection Type is B or S, Behavior is C, Bird Height is > 2.00, blank or "U" for unknown

Fly over > 1 canopies
a) Detection Type is B, S, or H, Behavior is F, Bird Height is > 1, blank or "U" for unknown

Feathered bird on ground
a) Detection Type is B or S, Behavior is FG

Appendix J. Marbled Murrelet status and obscode values (continued)

LOGIC FOR ASSIGNING MARBLED MURRELET WDFWSTAT CODE VALUES:
(for clarification of codes please contact the Marbled Murrelet Database manager)

Heard only
a) Detection Type is H, Behavior is B, T, C, F, L, blank, or "U" for unknown
b) Detection Type is H, Behavior is S, Vocal is < 3

Unreported Behavior (above canopy)
a) Detection Type is B or S, Behavior is blank or "U" for unknown, Bird Height is >1 canopy (if a Bird Height is reported then it is possible that the notes may indicate some behavior, this should be manually reviewed)

5) No Detections

LOGIC FOR ASSIGNING MARBLED MURRELET OBSCODE VALUES:
(for clarification of codes please contact the Marbled Murrelet Database manager)

1) Nest (assigned at time of data entry, Behavior N is recommended)

2) DG = dead young, flightless or downey (assigned at time of data entry)
EG = eggshell fragments on ground (assigned at time of data entry)

3) Visual circling <= 1 canopy
a) Detection Type is B or S, Behavior is B, Bird Height is <= 1, blank or "U" for unknown

4) Visual flythrough <= 1 canopy
a) Detection Type is B or S, Behavior is T, Bird Height is <= 1, blank or "U" for unknown

5) Visual circling > 1 and <= 1.25 canopies
a) Detection Type is B or S, Behavior is C, Bird Height is > 1 and <= 1.25

6) Visual circling < 1 canopy adjacent to suitable stand (circling flight in non-forested air space next to suitable stand)
a) Detection type is B or S, Behavior is B, Bird Height is <= 1 canopy, blank or "U" for unknown, Notes "adjacent to stand or over clear-cut" etc ...
Note: If observer does not note circling over clear-cut, then this behavior would need to be recognized at time of digitization and then assigned at time of data entry. All adjacent subcanopy circling was digitized, but not identified as a status "6" code, during statewide95 digitization.

Appendix J. Marbled Murrelet status and obscode values (continued)

LOGIC FOR ASSIGNING MARBLED MURRELET OBSCODE VALUES:
(for clarification of codes please contact the Marbled Murrelet Database manager)

7) Visual landing
a) Detection Type is B or S, Behavior is L, Bird Height is any numerical value, blank or "U" for unknown
(Notes should reenforce Behavior or reverified with observer)

8) Stationary
a) Detection Type is H, Behavior is S, Vocalization is >= 3, Bird Height is any numerical value, blank, or "U" unknown, Notes or Closest Dist. is <= 100m or 328 feet
(Closest Dist. was not captured in the new '95 database, therefor, it is necessary to manually review any surveys generating Behavior S)

9) Unreported behavior (subcanopy)
a) Detection Type is B or S, Behavior is blank or "U" for unknown, Bird Height is <= 1 canopy
(check notes for behaviors)

10) Visual circling > 1.25 and <= 2 canopies
a) Detection Type is B or S, Behavior is C, Bird Height is > 1.25 and <= 2 canopies

11) Visual circling > 2 canopies
a) Detection Type is B or S, Behavior is C, Bird Height is > 2, blank or "U" for unknown

12) Auditory circling <= 1 canopy
a) Detection Type is H, Behavior is B, Bird Height is <= 1, blank or "U" for unknown

13) Auditory flythrough <= 1 canopy
a) Detection Type is H, Behavior is T, Bird Height is <= 1 canopy, blank or "U" for unknown

14) Auditory circling > 1 and <= 1.25 canopies
a) Detection Type is H, Behavior is C, Bird Height is > 1 and <= 1.25

15) Auditory Unreported Behavior (subcanopy)
a) Detection Type is H, Behavior is blank or "U" for unknown, Bird Height is <= 1 canopy
(when a Bird Height is reported then it is possible that the notes may indicated some behavior, this should be manually reviewed)

Appendix J. Marbled Murrelet status and obscode values (continued)

LOGIC FOR ASSIGNING MARBLED MURRELET OBSCODE VALUES:
(for clarification of codes please contact the Marbled Murrelet Database manager)

16) Auditory circling > 1.25 canopies
a) Detection Type is H, Behavior is C, Bird Height is > 1.25, blank or “U” for unknown

17) Auditory landing (an unlikely, yet possible, value for an observer to report)
a) Detection Type is H, Behavior is L, Bird Height is any numerical value, blank or “U” for unknown

18) Fly over > 1 canopies
a) Detection Type is B, S, or H, Behavior is F, Bird Height is >1, blank or “U” for unknown

19) Feathered bird on ground
a) Detection Type is B or S, Behavior is FG

20) Unreported behavior (above canopy)
a) Detection Type is B, S, or H, Behavior is blank or “U” for unknown, Bird Height is > 1, blank, or “U” for unknown
(when Bird Height is reported it is possible that the notes may indicate some behavior, this should be manually reviewed)

21) Stationary < 3 vocals
a) Detection Type is H, Behavior is S, Vocals is < 3

30) No Detections

Appendix K. StreamNet Fish Species Codes

Game Fish Codes

Species Code	Species Name
ANAD	Anadromous Presence
BRT	Trout, Brown
CCF	Catfish, Channel
CCT	Cutthroat, Coastal Resident
CHFA	Salmon, Fall Chinook
CHSP	Salmon, Spring Chinook
CHUM	Salmon, Chum
COHO	Salmon, Coho
CPY	Crappie, General
CRP	Carp
DBT	Trout, Dolly Varden/Bull (currently not available)
EBT	Trout, Eastern Brook
GRST	Sturgeon, Green
KOK	Salmon, Kokanee
LMB	Bass, Largemouth
PINK	Salmon, Pink
PSD	Pumpkinseed
RBT	Trout, Rainbow
RES	Resident Fish Presence
SCT	Cutthroat, Searun
SHAD	Shad, American
SMB	Bass, Smallmouth
SMET	Smelt, Longfin
SOCK	Salmon, Sockeye
STSU	Steelhead, Summer
STWI	Steelhead, Winter
WAL	Walleye
WCT	Cutthroat, West Slope
WHF	Whitefish, Mountain
WHST	Sturgeon, White
YPC	Perch, Yellow

Appendix K. StreamNet Fish Species Codes (continued)

Non-game Fish Codes

Species Code	Species Name
BRS	Sucker, Bridgelip
COT	Sculpin, General
LND	Dace, Longnose
LRS	Sucker, Largescale
MNS	Sucker, Mountain
NSF	Squawfish, Northern
OMM	Muddminnow, Olympia
PGW	Whitefish, Pygmy
RES	Resident Fish Presence (same as under game fish)
RSS	Shiner, Redside
SAN	Sandroller
SPD	Dace, Speckled
TSS	Stickleback, Three-spine

Appendix L. Hydrologic Unit Codes and Basin List

Hydrologic Unit Code	Major River or Water Body
Pend Oreille	
17010214	Blanchard Creek
17010215	Lower West Branch Priest River
17010216	Pend Oreille River
Spokane	
17010303	Lake Creek
17010305	Upper Spokane River
17010306	Hangman Creek
17010307	Lower Spokane River
17010308	Little Spokane River
Upper Columbia	
17020001	Franklin D. Roosevelt Lake
17020002	Kettle River
17020003	Colville River
17020004	Sanpoil River
17020005	Middle Columbia River (Wells Dam)
17020006	Okanogan River
17020007	Similkameen River
17020008	Methow River
17020009	Lake Chelan
17020010	Middle Columbia River (Rock Island Dam)
17020011	Wenatchee River
17020012	Moses Coulee
17020013	Crab Creek
17020014	Banks Lake
17020015	Lower Crab Creek
17020016	Middle Columbia River (Priest Rapids Dam)
Yakima	
17030001	Upper Yakima River
17030002	Naches River
17030003	Lower Yakima River
Snake	
17060103	Asotin Creek
17060106	Grande Ronde River
17060107	Snake River
17060108	Palouse River
17060109	Rock River
17060110	Lower Snake River (Ice Harbor Dam)

Appendix L. Hydrologic Unit Codes and Basin List

Hydrologic Unit Code	Major River or Water Body
Klickitat	
17070101	Lake Wallula
17070102	Walla Walla River
17070105	White Salmon River
17070106	Klickitat River
Cowlitz	
17080001	Washougal River
17080002	Lewis River
17080003	Kalama River
17080004	Upper Cowlitz River
17080005	Lower Cowlitz River
17080006	Grays River
Coast	
17100101	Hoh River
17100102	Quinault River
17100103	Upper Chehalis River
17100104	Lower Chehalis River
17100105	Humptulips River
17100106	Willapa River
Puget Sound	
17110001	Fraser River
17110002	Samish River
17110003	San Juan Islands
17110004	Nooksack River
17110005	Upper Skagit River
17110006	Sauk River
17110007	Lower Skagit River
17110008	Stillaguamish River
17110009	Skykomish River
17110010	Upper Snoqualmie River
17110011	Lower Snoqualmie River
17110012	Cedar River
17110013	Green River
17110014	Puyallup River
17110015	Nisqually River
17110016	Deschutes River
17110017	Skokomish River
17110018	Hood Canal
17110019	Puget Sound
17110020	Elwha River
17110021	Lake Cresent

Appendix M. WDFW Regional Contacts

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
REGIONAL HABITAT PROGRAM MANAGER CONTACTS

For assistance with Prioirty Habitats and Species Information contact a regional habitat program manger and they will direct your questions to a biologist.

County project is in...	**Contact...**
Asotin, Columbia, Ferry, Garfield Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	John Andrews 8702 North Division Street Spokane, WA 99218-1199 Phone: (509) 456-4082
Adams, Chelan, Douglas, Grant, Okanogan	Tracy Lloyd 1550 Alder Street NW Ephrata, WA 98823-9699 Phone: (509) 754-4624
Benton, Franklin, Kittitas, Yakima	Ted Clausing 1701 24th Avenue Yakima, WA 98902-5720 Phone: (509) 575-2740
Island, King, San Juan, Skagit, Snohomish, Whatcom	Ted Muller 16018 Mill Creek Blvd. Mill Creek, WA 98012-1296 Phone: (206) 775-1311
Clark, Cowlitz, Klickitat, Lewis, Skamania, Wahkiakum	Bryan Cowan 2108 Grand Blvd. Vancouver, WA 98661 Phone: (360) 696-6211
Clallam, Grays Harbor, Jefferson, Kitsap, Mason, Pacific, Pierce, Thurston	Steve Keller 48 Devonshire Road Montesano, WA 98563-9618 Phone: (360) 249-4628